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National Air Data Branch Emission Data Systems Training Manual

PEDCo-Environmental Specialists, Inc, Cincinnati, Ohio

Prepared for

Environmental Protection Agency, Research Triangle Park, N C Office of Air Quality Planning and Standards

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16. ABSTRACT

The report gives instruction in National Air Data Branch (NADB) computerized emission data systems. Emphasis was placed on National Emission Data System (NEDS) point source data coding, updating procedures, and error messages produced by the edit/check program. In addition, NEDS area source data development and coding was covered. The various NEDS output formats were discussed along with the retrieval options available for each format. An introductory explanation was given for the Emissions Inventory Subsystem (EIS) of the Comprehensive Data Handling System (CDHS). This was followed by instructions in coding point source data on EIS forms.

17. KEY WORDS AND DOCUMENT ANALYSIS

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Data Retrieval Manuals Inventories Air Pollution	NABD NEDS	13B

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Office of Air and Waste Management
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1.0 INTRODUCTION

An emissions inventory of pollution sources provides data concerning the location, magnitude, frequency, and duration of pollutant emissions and their relative contribution to local pollution problems. This information is used in establishing air monitoring networks and in design and evaluation of pollution control programs. In conjunction with meteorological data, it is used to predict ambient air quality. Because the emissions data are stored by computer, they are easily retrieved for use in a variety of summary report formats.

Three major computer systems have been developed to perform these tasks. They are the National Emissions Data System (NEDS), the Emissions Inventory Subsystem (EIS) of the Comprehensive Data Handling System (CDHS), and the STARTER system.

This document is a supplement to the available instructional materials on NEDS and EIS. The STARTER system, which is proprietary, is not discussed herein.

2.0 NATIONAL EMISSIONS DATA SYSTEM (NEDS)

NEDS provides coding systems for emissions from both point and area sources. Procedures are provided also for updating information in the NEDS data bank and editing and checking information that is to enter the data bank. These procedures are explained in this document. NEDS point and area source emissions are complementary for particular source categories. For example, industrial fuel usage which is not accounted for in the point source record, is included as an area source. There are also categories, such as motor vehicle emissions, that are exclusively area sources.

When coding NEDS it is important to have available the following list of references:

Guide for Compiling a Comprehensive Emission Inventory, APTD-1135. (Reference 1)

SAROAD Station Coding Manual for Aerometric Sampling Networks, APTD-0907. (Reference 2)

Federal Air Quality Control Regions, AP-102. (Reference 3)

Standard Industrial Classification Manual, 1972. (Reference 4)

Compilation of Air Pollutant Emission Factors, Second Edition, AP-42. (Reference 5)

SCC Listing. (Reference 6)

NEDS Update Procedures. (Reference 7)

NEDS Edit Listing. (Reference 8)

National Emissions Data System Control Device Workbook, APTD-1570. (Reference 9)

Up-to-date Point Source Listing

2.1 POINT SOURCES

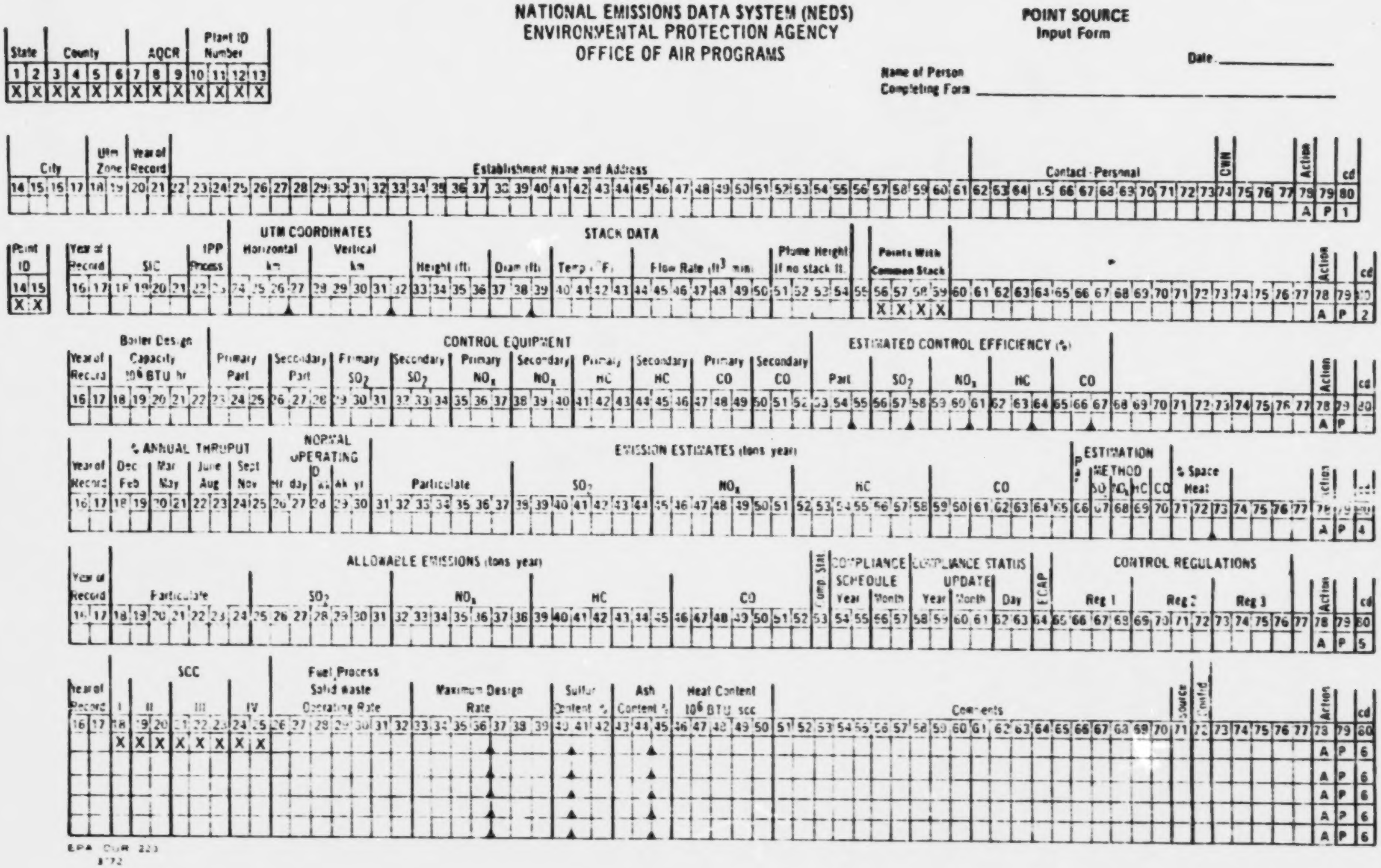
Point sources emit or have the potential to emit pollutants in quantities significant enough that each source is considered individually in an emissions inventory. Criteria for designation of point sources are given in Chapter 4 of APTD-1135. The U.S. EPA regulations which define point sources are also published in the Federal Register.

2.1.1 Coding

The NEDS point source form is shown in Figure 2.1. Although detailed coding instructions are given in APTD-1135, we briefly describe herein each entry field and indicate items not fully covered in that reference.

The coding form includes six separate cards, all of which are complementary. These cards are labeled 1 through 6. There is provision on the form for more than one card 6. The use of multiple card 6's will be explained later.

When coding it is important to understand the concept of "identifiers," "control codes," and "data fields." On each NEDS form there are certain identifiers which define the plant, point, and process. The information fields which serve as identifiers are indicated in Figure 2.1. The first 13 columns are identifiers which are common to all six



NATIONAL EMISSIONS DATA SYSTEM (NEDS)
ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF AIR PROGRAMS

POINT SOURCE
Input Form

Name of Person Completing Form ____________ Date ____________

State		County				AQCR			Plant ID Number			
1	2	3	4	5	6	7	8	9	10	11	12	13
X	X	X	X	X	X	X	X	X	X	X	X	X

City; Utm Zone; Year of Record; Establishment Name and Address; Contact - Personal; CWN; Action; cd — A P 1

Point ID (14 15: X X); Year of Record; SIC; IPP Process; UTM COORDINATES: Horizontal km, Vertical km; STACK DATA: Height (ft), Diam (ft), Temp (°F), Flow Rate (ft³/min), Plume Height if no stack ft; Points With Common Stack (56 57 58 59: X X X X); Action; cd — A P 2

Year of Record; Boiler Design Capacity 10⁶ BTU/hr; CONTROL EQUIPMENT: Primary Part, Secondary Part, Primary SO₂, Secondary SO₂, Primary NOₓ, Secondary NOₓ, Primary HC, Secondary HC, Primary CO, Secondary CO; ESTIMATED CONTROL EFFICIENCY (%): Part, SO₂, NOₓ, HC, CO; Action; cd — A P 3

Year of Record; % ANNUAL THRUPUT: Dec Feb, Mar May, June Aug, Sept Nov; NORMAL OPERATING: Hr/day, D/wk, Wk/yr; EMISSION ESTIMATES (tons/year): Particulate, SO₂, NOₓ, HC, CO; ESTIMATION METHOD: P, SO, NOₓ, HC, CO; % Space Heat; Action; cd — A P 4

Year of Record; ALLOWABLE EMISSIONS (tons/year): Particulate, SO₂, NOₓ, HC, CO; Comp Stat; COMPLIANCE SCHEDULE: Year, Month; COMPLIANCE STATUS UPDATE: Year, Month, Day; ECAP; CONTROL REGULATIONS: Reg 1, Reg 2, Reg 3; Action; cd — A P 5

Year of Record; SCC: I, II, III, IV (18–25: X X X X X X X X); Fuel, Process, Solid Waste Operating Rate; Maximum Design Rate; Sulfur Content %; Ash Content %; Heat Content 10⁶ BTU/scc; Comments; Source; Confid; Action; cd — A P 6 (five rows)

EPA DUR 223
1/72

Entry (X) denotes column is an identifier.

Figure 2.1 NEDS point source coding form with identification columns denoted.

cards. Columns 14 and 15 is the point identification which is common to cards 2 through 6. The Source Classification Code (SCC) entered in columns 18 through 25 identifies the process. Columns 56 through 59 of card 2 (common stack information) are identifiers for the "change action" of card 2. The change procedure is explained later. The concept of "identifiers" is important as no updating of NEDS information can be accomplished without full use of the identification codes. The computer system will not accept any data where one of the identification codes are missing.

Columns 78 through 80 are used for the program's control codes. There are three control codes: action code, format code, and card code. The action codes (Col. 78) are A, D, and C which denote respectively, add, delete, and change. The "P" in column 79 signifies the card has a point source format. An "A" must be entered in this column to indicate an area source format. The card number is entered in column 80. The column headings not discussed above signify data fields.

Before coding a plant into the system, it is often helpful to first draw a flow diagram of all operations present. This helps identify the process and emission points. An example of such a flow diagram is given in Figure 2.2.

A few general instructions which should be kept in mind when coding NEDS forms include the following:

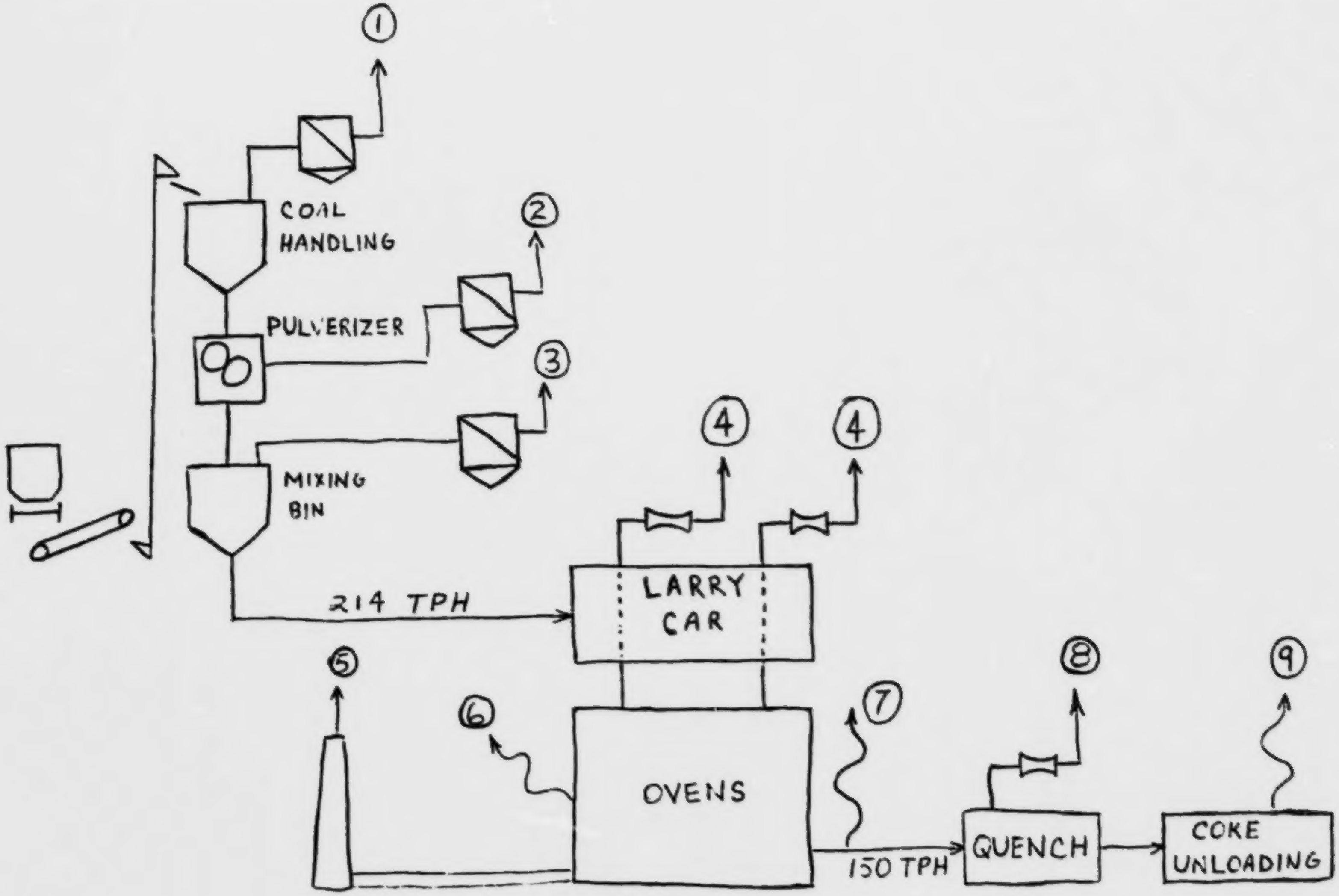

①
COAL
HANDLING
②
PULVERIZER
③
MIXING
BIN
④
④
214 TPH
LARRY
CAR
⑤
⑥
OVENS
⑦
⑧
⑨
150 TPH
QUENCH
COKE
UNLOADING

Figure 2.2 Typical process flow diagram as drawn on back of NEDS coding form.

- NEDS coding form field headings cannot be changed.
- Decimal points cannot be placed in the fields except as is preprinted on the coding form.
- Only codes prescribed by EPA and found in APTD-1135 may be used.
- Columns which have no headings cannot be used.
- Forms submitted must be clear and legible. All entries must be made with a heavy pencil or a pen.
- When the state or local agency makes a decision regarding coding procedures, it should be put in writing and kept for convenient reference.

2.1.1.1 Card 1 - The purpose of card 1 is to identify and locate the plant. When a facility has multiple emission point ID's, complete spaces 14 through 74 of card 1 on the first point source coding form only; on all other point source coding forms relating to additional points within the plant these spaces are left blank. Fill in columns 1 through 13 on all coding forms, there can be no blanks in these columns.

State codes are given in Appendix A, Section 1, APTD-1135. County codes are given in APTD-0907. There are a few exceptions, for NEDS purposes, to the codes listed in APTD-0907. These exceptions are for the States of Connecticut, Maine, and Massachusetts only, and are listed in Appendix A of this report. A few cities in the United States are not considered to be within any county, but rather are independent entities. For these cities, the city code should be entered in both "city" and "county" coding columns. Code numbers for the Air Quality Control Regions are given in

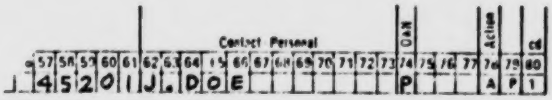
Appendix A, Section 1, APTD-1135. The counties in each AQCR are listed in AP-102. Use APTD-0907 and AP-102 to locate the proper AQCR number. The plant identification number identifies each plant or facility within a county. The numbering system is sequential, starting with the number one and continuing until all facilities in the county are assigned numbers. One person should be responsible for assigning plant ID's and reporting this information to the AEROS contact at the EPA Regional Office. A convenient method of recording the assigned plant identification numbers is to use a table of numbers and line through the number when it is assigned. A blank table is provided in Appendix C for this purpose. All columns in the plant ID field must be filled in; for example, the proper entry for a plant with ID number 5 is 0005, entered in columns 10 through 13.

State		County				AQCR			Plant ID Number			
1	2	3	4	5	6	7	8	9	10	11	12	13
3	6	2	7	2	0	0	7	9	0	0	0	5

If a source is within the city limits of a city listed in APTD-0907, the 4-digit code number corresponding to that city is entered in columns 14 through 17. Do not enter a town or city code if the facility is located outside the boundary of the city of address. Universal Transverse Mercator (UTM) zones can be located on U.S. Geological Survey (USGS) maps. Also, Figure 2-2 of APTD-1135 shows the longitude meridians that divide each UTM zone. The year of record is the calendar year that the data on a card represents.

City				Utm Zone		Year of Record		Establishment Name and Address																							
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
1	2	2	0	1	6	7	3	D	O	E		F	O	U	N	D	R	Y		C	O		1	2	3		B		S	T	

This holds true for all cards. The year of record must be entered on cards 1 and 2. Name and address of the establishment are entered in columns 22 through 61. The establishment name should be the name which the facility itself uses and which the state and/or local agency has on its records. Use common abbreviations where possible. Identify the location of the facility by giving a street address rather than a post office box number. Include the city name only if there is no SAROAD city code entered in columns 14 through 17, and enter the postal ZIP code when possible. The personal contact at the plant is the person in charge of pollution control activities. The ownership code identifies the owner of the facility as either private, governmental (local, State, or Federal), or utility (e.g., electric power plant). Ownership codes are given in APTD-1135.

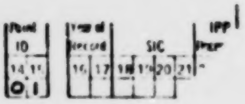


					Contact Personal												Own				Action		cd
57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
4	5	2	0	1	J	.	D	O	E								P				A	P	1

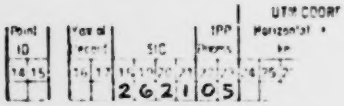
2.1.1.2 Card 2 - The function of card 2 is mainly to give stack data and locate emission points via UTM coordinates. This information is necessary for computer modeling.

Each facility usually has more than one emission point. Cards 2 through 6 present the data peculiar to each emission point within a plant. Several emission points may be combined if they are similar and do not emit large amounts of pollutants. If several points are combined into one emission point, note this fact in "comments" (card 6) and enter the representative stack data as explained later.

Each emission point within a plant is numbered consecutively starting with one. If there are more than 99 points within a plant, the remaining points should be identified alphabetically as follows: AA, AB, AC,..., BA, BB, BC,...,ZZ. Note that since both columns 14 and 15 of card 2 must be filled in on every form, emission point one is entered as 01. Standard Industrial Classification (SIC) codes that are also assigned an IPP Process code are given in Appendix A, APTD-1135. All SIC codes are listed in the 1972 SIC Manual (Reference 4). The SIC code entered for all points within a facility (except refuse disposal) should be that which represents the principal activity of the facility. However, if the facility reports more than one SIC, these SIC's should be used with the appropriate processes. For all waste disposal facilities (such as incinerators) SIC 4953 must be used. If the IPP code is not listed for a process, leave the columns blank. Boilers are given the SIC code representative of the plant and should always have the appropriate IPP code from page A-42, Appendix A, APTD-1135. Note that all boilers fired with oil or natural gas have an IPP code of 00.

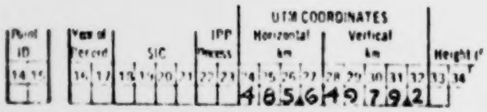


Point ID		Year of Record		SIC				IPP Proc
14	15	16	17	18	19	20	21	
0	1							



Point ID		Year of Record		SIC				IPP Process		UTM COORD Horizontal km		
14	15	16	17	18	19	20	21	22	23	24	25	26
				2	6	2	1	0	5			

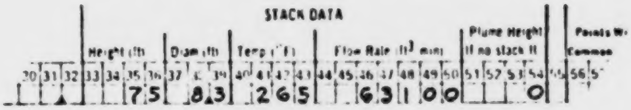
The UTM coordinates are taken from USGS maps. Accurate location is necessary if the information is to be used for modeling air quality. If



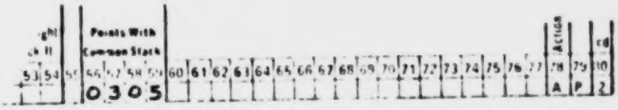
Point ID		Year of Record		SIC				IPP Process		UTM COORDINATES Horizontal km				UTM COORDINATES Vertical km					Height ft	
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
										4	6	5	6	4	9	7	9	2		

possible (for large plants) the UTM coordinates should be unique for each point. In some cases the plant location has been expressed in latitude and longitude. When that is the case, EPA can furnish a computer program for conversion of latitude and longitude to UTM coordinates.

Enter stack parameters, as described in APTD-1135, in columns 33 through 54 of card 2. If a source does not have a definite stack, enter zeros for stack height, diameter, and flow rate and enter the height of the emission release point (above ground level) in columns 51 through 54, plume height. Record the temperature of the released gases in columns 40 through 43. When combining data on several stacks onto one form, determine the appropriate stack data by the formula on page 4-9 of APTD-1135 and indicate the number of stacks combined in "comments."

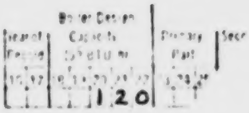

STACK DATA
Height (ft) 33–36: 75
Diam (ft) 37–39: 8.3
Temp (°F) 40–43: 265
Flow Rate (ft³/min) 44–50: 63100
Plume Height if no stack ft 51–54: 0
Points W. Common 56 5

If several points have a common stack, assign consecutive point ID numbers and enter the same numbers for stack height, diameter, and temperature. The flow rate is the amount contributed to that particular source. The information entered in columns 56 through 59 should complete the following sentence: "Points ID's (columns 56 and 57) through (columns 58 and 59) discharge emissions through one single


Points With Common Stack 56–59: 0305
Action 78: A
79: P
80: 2

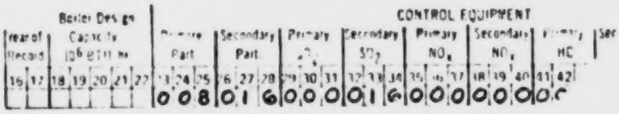
and common stack." For example, if points 3, 4, and 5 have a common stack, enter 0305 in columns 56 through 59 of card 2 for all three point ID's. If a point does not have a common stack, enter 0000 in these columns.

2.1.1.3 Card 3 - The primary function of card 3 is to record data on control equipment and estimated control efficiency. Boiler design capacity is entered for boilers only, and not for other combustion units such as stationary internal combustion engines or incinerators. Enter a zero if this category is not applicable. The boiler design capacity should always be at least equal to or greater than the product of maximum design rate and heat content (both parameters found on card 6).



Year of Record	Boiler Design Capacity 10^6 BTU/hr	Primary Part	Sec
16 17	18 19 20 21 22	23 24 25	
	120		

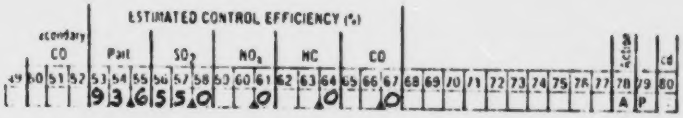
Control equipment codes are given in Appendix A, APTD-1135. If no control equipment is used, enter three zeros in the appropriate columns. Primary control equipment is a control device whose main function is to reduce emissions of that pollutant under which it is listed, or the first in a series of control devices. Secondary control equipment is either a device that follows primary equipment in series or a device that although designed primarily to remove one pollutant affects removal of another. For example, a fabric filter on a cement kiln primarily removes



		CONTROL EQUIPMENT							
Year of Record	Boiler Design Capacity 10^6 BTU/hr	Primary Part	Secondary Part	Primary SO_2	Secondary SO_2	Primary NO_x	Secondary NO_x	Primary HC	Sec
16 17	18 19 20 21 22	23 24 25	26 27 28	29 30 31	32 33 34	35 36 37	38 39 40	41 42	
		008	016	000	016	000	000	00	

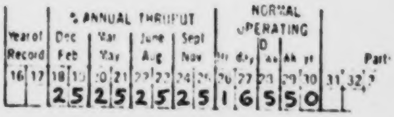
particulates but also reacts with the alkaline particulate filter cake to remove some of the SO_2 (Reference 5). Therefore, the fabric filter would be listed as the primary collector for particulate (if there were no other control devices in series) and as a secondary control device for SO_2. Equipment that functions as a normal part of the process, such as a cyclone on a petroleum refinery catalytic cracker, is not considered as a control device but as part of the process. In such instances, do not enter codes for the device as a control device.

Enter the estimated overall control efficiency whenever possible. If there is no removal of a pollutant, enter a right-justified zero for that pollutant. A reference that may be used to obtain typical control efficiencies is APTD-1570.



	Secondary CO	ESTIMATED CONTROL EFFICIENCY (%) Part	SO_2	NO_x	HC	CO		Action		Cd
49	50 51 52	53 54 55	56 57 58	59 60 61	62 63 64	65 66 67	68 69 70 71 72 73 74 75 76 77	78	79	80
		93.6	55.0	0	0	0		A	P	

2.1.1.4 Card 4 - Card 4 gives operating information and emission estimates. Percent annual throughput is the percent of annual activity that occurs during each of the time periods listed. If a source reports no seasonal variation, distribute the throughput values evenly. The normal operating schedule indicates the normal hours of operation per day, days per week, and weeks per year for each specific point.

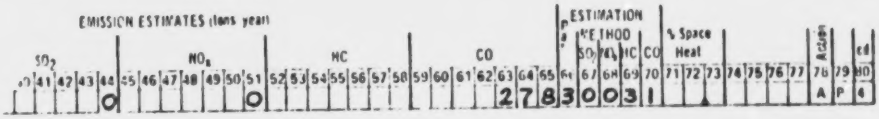


Year of Record	% ANNUAL THRUPUT Dec Feb	Mar May	June Aug	Sept Nov	NORMAL OPERATING hr day	D wk	wk yr		Part
16 17	18 19	20 21	22 23	24 25	26 27	28	29 30	31 32	
	25	25	25	25	16	5	50		

Emission estimates are the estimated annual emissions from the point source. The emissions should be entered except when estimation method 3 is used. In-process fuel emissions need not be calculated.

The estimation method codes should be entered in columns 66 through 70. These codes indicate on what basis emission estimates were made. These codes are given in Table 2.1.

If a pollutant is not emitted by the source, enter a zero for the emissions estimate and for the corresponding estimation method. Do this also when AP-42 lists a pollutant as negligible. If the emission factor in the SCC list is zero, then either 3 or 0 can be entered as the estimation method. Note that pollutants with zero as the estimation method always have zero for the emission estimate.



EMISSION ESTIMATES (tons/year)
SO_2
NO_x
HC
CO
ESTIMATION METHOD
SO_2
NO_x
HC
CO
% Space Heat
Action
40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
0
0
2 7 8 3 0 0 3 1
A
P
4

If reliable source test data are available, use these values to calculate the annual emissions. Take special care to use code 1 only when source test data are used to calculate annual emissions.

Code 2 denotes a material balance using engineering knowledge and expertise of the process. Use code 2 only when a material balance is performed.

Entry of estimation method 3 for a pollutant, with a corresponding emission factor in the SCC listing will cause

Table 2.1 ESTIMATION METHOD CODE

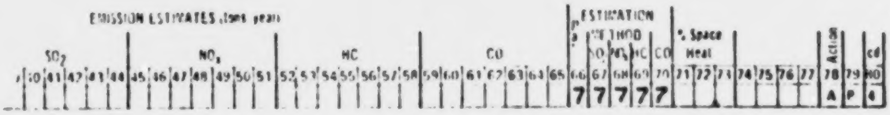
Code	Description of Method
0	Not applicable or emissions are known to be zero.
1	Source test results or other emission measurements.
2	Material balance using engineering knowledge and expertise of process.
3	Emissions computer calculated using emission factors in the SCC listing. No emission estimates need be coded on NEDS form.
4	Guess.
5	Emissions calculated using a special emission factor differing from that in the SCC listing.
6	New source for which approval to construct has been given but at which operation has not yet begun. Emission estimates are zero.
7	Sources ceasing operation. Emission estimates are zero.

automatic calculation of the emissions using that emission factor. The emission estimates may then be left blank for that pollutant. Code 3 may not be used when there is no corresponding emission factor in the SCC listing. When using code 3, the annual operating rate, estimated control efficiency, and sulfur or ash content (if appropriate) must be entered on the coding form.

Code 4 signifies that a guess is the basis for the emission calculations. If a given SCC is assigned no emission factor, but an AP-42 factor for a similar process is used as a basis for the emission estimate, enter a 4 for the estimation method.

If an emission factor other than that contained in the SCC listing is used to calculate the emission estimate, a code 5 should be entered as the estimation method. An example would be when AP-42 gives the emission factor as a range and it is desired to use a factor in that range other than the one in the SCC listing. The emission estimates would then be calculated and entered based on the special factor and estimation method code 5 would be entered.

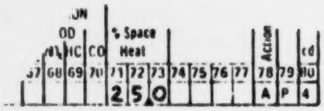
Code 6 should be used for new sources that have not yet begun to operate. Code 7 should be entered for processes ceasing operation. This code should be used rather than deleting the process from the data bank. Both codes will automatically estimate emissions as


EMISSION ESTIMATES (tons year)
SO2
NOx
HC
CO
ESTIMATION METHOD
NOx
HC
CO
% Space Heat
Action
cd
40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
7 7 7 7 7
A P 4

zero. Therefore no entries should be made in the emission estimates field when either code 6 or 7 is entered in the estimation method field.

When filling out the NEDS form, perform all calculations on the back of the form - not only emission calculations, but also any other calculations required for an information field. Also record any explanatory notes you feel may be necessary. Any person reviewing the form can then determine easily how the entries were obtained or resolve any discrepancies.

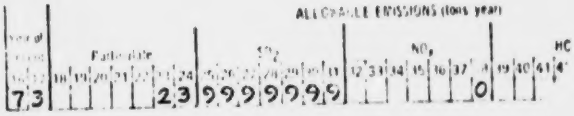
The final information field on card 4 is % space heat This field indicates the percent of fuel used for space heating. If the particular point ID being coded happens to be a process, a zero must be entered in column 73. A whole number cannot be entered in this field unless card 6 indicates that the point burns fuel.



	HC	CO	% Space Heat							Action		Cd
68	69	70	71	72	73	74	75	76	77	78	79	80
			2	5	0					A	P	4

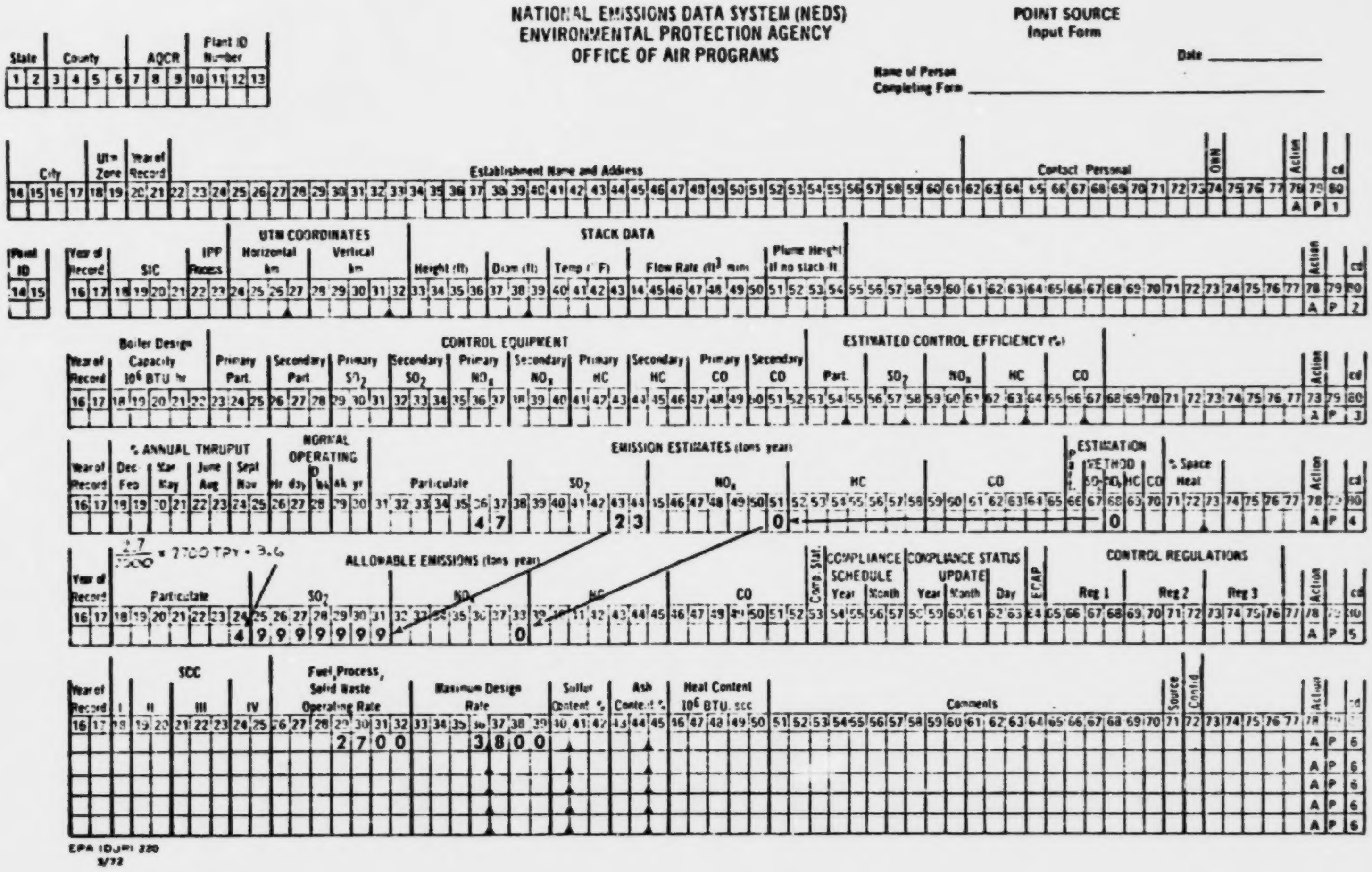
2.1.1.5 Card 5 - Card 5 gives data on allowable emissions and compliance status. Enter the year for which the emissions are estimated as the year of record.

Calculate allowable emissions on the basis of applicable regulations which were enforceable during the year of record. Note that current regulations may not have been applicable during that year. For all processes that are not emitters of a specific pollutant, enter a zero in the appropriate column in the allowable emissions information field. For example, see the NO_x emissions indicated on Figure 2.3. When an actual emission of zero tons per year is shown because the source is small or well-controlled, allowable emissions are calculated and entered on card 5, as shown for particulate emissions on Figure 2.4. Where allowable emissions are calculated to be less than 0.5 TPY, do not round off to zero. In such cases enter a "1" in the appropriate column.


ALLOWABLE EMISSIONS (tons year)
Particulate
SO_2
NO_x
HC
7 3
2 3
9 9 9 9 9 9 9
0

If no regulation is applicable to a pollutant emitted by a source, enter 9's in the appropriate columns on card 5, as shown for SO_2 emissions in Figure 2.3. By use of example allowable emission rates, obtained from Figure 2.5, allowable process emissions of particulate can be calculated, as shown in Figure 2.6. Allowable process emissions are based on the hourly maximum design rate (card 6, columns 33-39). By use of example allowable emission rates obtained from Figure 2.7, allowable emissions of particulate from an indirect heat exchanger can be calculated, as shown in Figure 2.8. For boilers, allowable emissions are based on the design capacity (card 3, columns 18-22).

The compliance status and compliance schedules are entered as described in APTD-1135. Note that the compliance schedule field has an entry only if a "2" or "3" has been entered in column 53. Compliance update indicates the year, month, and day of the most recent change in compliance



NATIONAL EMISSIONS DATA SYSTEM (NEDS)
ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF AIR PROGRAMS

POINT SOURCE
Input Form

Date ____________

Name of Person Completing Form ____________

State	County	AQCR	Plant ID Number
1 2	3 4 5 6	7 8 9	10 11 12 13

Card 1: City (14–17); UTM Zone (18–19); Year of Record (20–21); Establishment Name and Address (22–61); Contact Personal (62–73); OWN (74); Action (78) A; (79) P; cd (80) 1

Card 2: Point ID (14–15); Year of Record (16–17); SIC (18–21); IPP Process (22–23); UTM COORDINATES: Horizontal km (24–27), Vertical km (28–32); STACK DATA: Height (ft) (33–36), Diam (ft) (37–39), Temp (°F) (40–43), Flow Rate (ft³ min) (44–50), Plume Height if no stack ft (51–54); Action (78) A; (79) P; cd (80) 2

Card 3: Year of Record (16–17); Boiler Design Capacity 10⁶ BTU hr (18–22); CONTROL EQUIPMENT: Primary Part. (23–25), Secondary Part (26–28), Primary SO_2 (29–31), Secondary SO_2 (32–34), Primary NO_x (35–37), Secondary NO_x (38–40), Primary HC (41–43), Secondary HC (44–46), Primary CO (47–49), Secondary CO (50–52); ESTIMATED CONTROL EFFICIENCY (%): Part. (53–55), SO_2 (56–58), NO_x (59–61), HC (62–64), CO (65–67); Action (78) A; (79) P; cd (80) 3

Card 4: Year of Record (16–17); % ANNUAL THRUPUT: Dec Feb (18–19), Mar May (20–21), June Aug (22–23), Sept Nov (24–25); NORMAL OPERATING: Hr day (26–27), D wk (28), Wk yr (29–30); EMISSION ESTIMATES (tons year): Particulate (31–37) 47, SO_2 (38–44) 23, NO_x (45–51) 0, HC (52–58), CO (59–65); Pt. (66); ESTIMATION METHOD: SO_2 (67), NO_x (68) 0, HC (69), CO (70); % Space Heat (71–73); Action (78) A; (79) P; cd (80) 4

$\frac{2.7}{2000} \times 2700$ TPY = 3.6

Card 5: Year of Record (16–17); ALLOWABLE EMISSIONS (tons year): Particulate (18–24) 4, SO_2 (25–31) 9999999, NO_x (32–38) 0, HC (39–45), CO (46–52); Comp. Stat. (53); COMPLIANCE SCHEDULE: Year (54–55), Month (56–57); COMPLIANCE STATUS UPDATE: Year (58–59), Month (60–61), Day (62–63); ECAP (64); CONTROL REGULATIONS: Reg 1 (65–68), Reg 2 (69–72), Reg 3 (73–76); Action (78) A; (79) P; cd (80) 5

Card 6: Year of Record (16–17); SCC: I (18), II (19–20), III (21–23), IV (24–25); Fuel, Process, Solid Waste Operating Rate (26–32) 2700; Maximum Design Rate (33–39) 3800; Sulfur Content % (40–42); Ash Content % (43–45); Heat Content 10⁶ BTU scc (46–50); Comments (51–70); Source (71); Contd (72); Action (78) A; (79) P; cd (80) 6

EPA (DUR) 220
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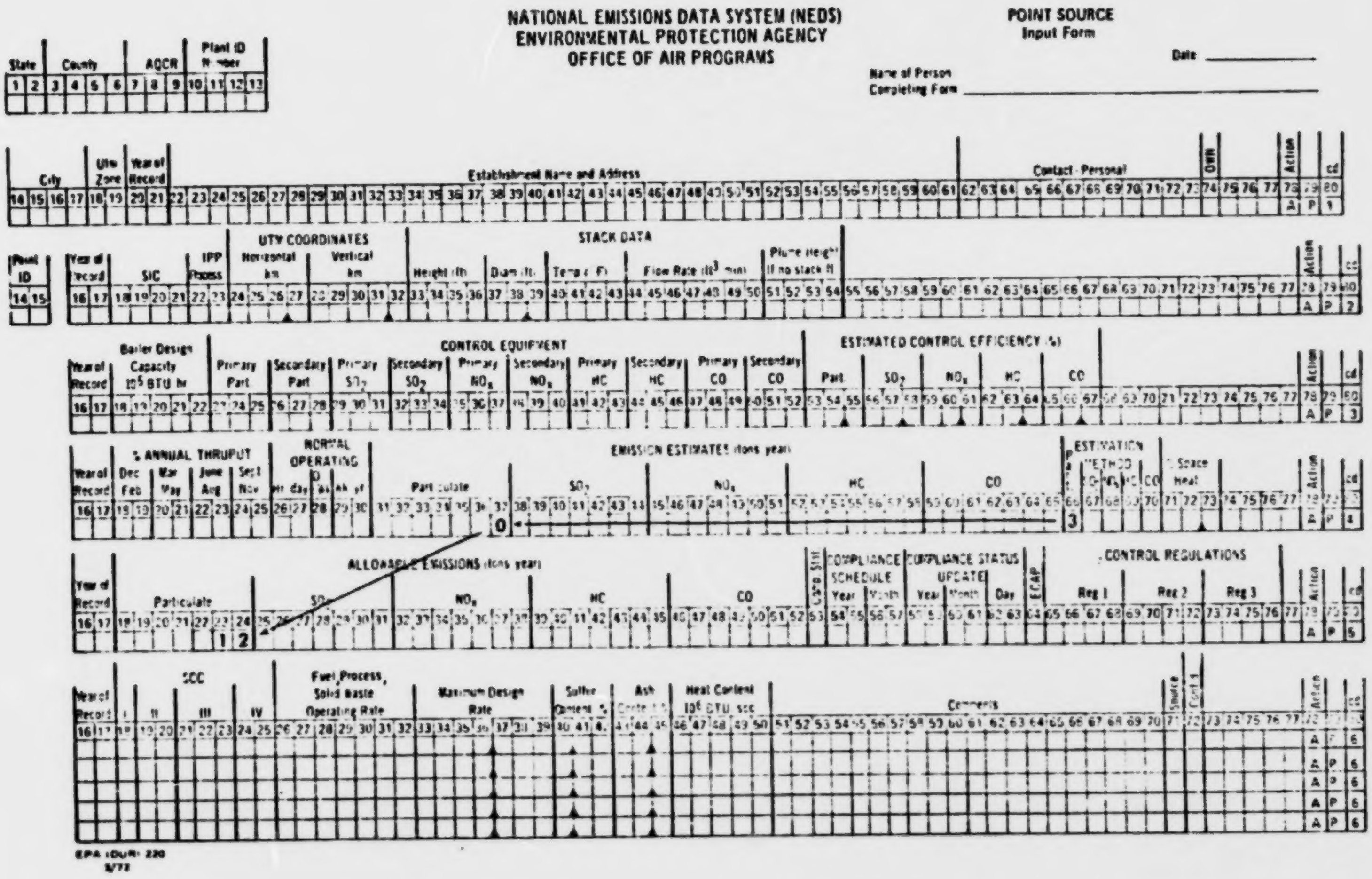
Figure 2.3 Allowable emissions for zero emitters and unlimited allowable emissions.



NATIONAL EMISSIONS DATA SYSTEM (NEDS)
ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF AIR PROGRAMS

POINT SOURCE
Input Form

Date ____________

Name of Person Completing Form ____________

State	1 2	
County	3 4 5 6	
AQCR	7 8 9	
Plant ID Number	10 11 12 13	

City	14 15 16 17	
Utm Zone	18 19	
Year of Record	20 21	
Establishment Name and Address	22–61	
Contact - Personal	62–73	
Own	74	
	75 76 77	
Action	78	A
	79	P
cd	80	1

Point ID	14 15	
Year of Record	16 17	
SIC	18 19 20 21	
IPP Process	22 23	
UTM COORDINATES Horizontal km	24 25 26 27	
UTM COORDINATES Vertical km	28 29 30 31 32	
STACK DATA Height (ft)	33 34 35 36	
STACK DATA Diam (ft)	37 38 39	
STACK DATA Temp (°F)	40 41 42 43	
STACK DATA Flow Rate (ft³/min)	44 45 46 47 48 49 50	
STACK DATA Plume Height If no stack ft	51 52 53 54	
	55–77	
Action	78	A
	79	P
cd	80	2

Year of Record	16 17	
Boiler Design Capacity 10⁵ BTU/hr	18 19 20 21 22	
CONTROL EQUIPMENT Primary Part	23 24 25	
CONTROL EQUIPMENT Secondary Part	26 27 28	
CONTROL EQUIPMENT Primary SO_2	29 30 31	
CONTROL EQUIPMENT Secondary SO_2	32 33 34	
CONTROL EQUIPMENT Primary NO_x	35 36 37	
CONTROL EQUIPMENT Secondary NO_x	38 39 40	
CONTROL EQUIPMENT Primary HC	41 42 43	
CONTROL EQUIPMENT Secondary HC	44 45 46	
CONTROL EQUIPMENT Primary CO	47 48 49	
CONTROL EQUIPMENT Secondary CO	50 51 52	
ESTIMATED CONTROL EFFICIENCY (%) Part	53 54 55	
ESTIMATED CONTROL EFFICIENCY (%) SO_2	56 57 58	
ESTIMATED CONTROL EFFICIENCY (%) NO_x	59 60 61	
ESTIMATED CONTROL EFFICIENCY (%) HC	62 63 64	
ESTIMATED CONTROL EFFICIENCY (%) CO	65 66 67	
	68–77	
Action	78	A
	79	P
cd	80	3

Year of Record	16 17	
% ANNUAL THRUPUT Dec Feb	18 19	
% ANNUAL THRUPUT Mar May	20 21	
% ANNUAL THRUPUT June Aug	22 23	
% ANNUAL THRUPUT Sept Nov	24 25	
NORMAL OPERATING hr/day	26 27	
NORMAL OPERATING days/wk	28	
NORMAL OPERATING wk/yr	29 30	
EMISSION ESTIMATES (tons/year) Particulate	31 32 33 34 35 36 37	0
EMISSION ESTIMATES (tons/year) SO_2	38 39 40 41 42 43 44	
EMISSION ESTIMATES (tons/year) NO_x	45 46 47 48 49 50 51	
EMISSION ESTIMATES (tons/year) HC	52 53 54 55 56 57 58	
EMISSION ESTIMATES (tons/year) CO	59 60 61 62 63 64 65	
ESTIMATION METHOD Part	66	3
ESTIMATION METHOD SO_2	67	
ESTIMATION METHOD NO_x	68	
ESTIMATION METHOD HC	69	
ESTIMATION METHOD CO	70	
% Space Heat	71 72 73	
	74 75 76 77	
Action	78	A
	79	P
cd	80	4

Year of Record	16 17	
ALLOWABLE EMISSIONS (tons/year) Particulate	18 19 20 21 22 23 24	1 2
ALLOWABLE EMISSIONS (tons/year) SO_2	25 26 27 28 29 30 31	
ALLOWABLE EMISSIONS (tons/year) NO_x	32 33 34 35 36 37 38	
ALLOWABLE EMISSIONS (tons/year) HC	39 40 41 42 43 44 45	
ALLOWABLE EMISSIONS (tons/year) CO	46 47 48 49 50 51 52	
Comp Stat	53	
COMPLIANCE SCHEDULE Year	54 55	
COMPLIANCE SCHEDULE Month	56 57	
COMPLIANCE STATUS UPDATE Year	58 59	
COMPLIANCE STATUS UPDATE Month	60 61	
COMPLIANCE STATUS UPDATE Day	62 63	
ECAP	64	
CONTROL REGULATIONS Reg 1	65 66 67 68	
CONTROL REGULATIONS Reg 2	69 70 71 72	
CONTROL REGULATIONS Reg 3	73 74 75 76	
	77	
Action	78	A
	79	P
cd	80	5

Year of Record	16 17	
SCC I	18	
SCC II	19 20	
SCC III	21 22 23	
SCC IV	24 25	
Fuel, Process, Solid Waste Operating Rate	26 27 28 29 30 31 32	
Maximum Design Rate	33 34 35 36 37 38 39	
Sulfur Content %	40 41 42	
Ash Content %	43 44 45	
Heat Content 10⁶ BTU/scc	46 47 48 49 50	
Comments	51–70	
Source	71	
Conf 1	72	
	73 74 75 76 77	
Action	78	A A A A A
	79	P P P P P
cd	80	6 6 6 6 6

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Figure 2.4 Allowable emissions for small or well-controlled sources.

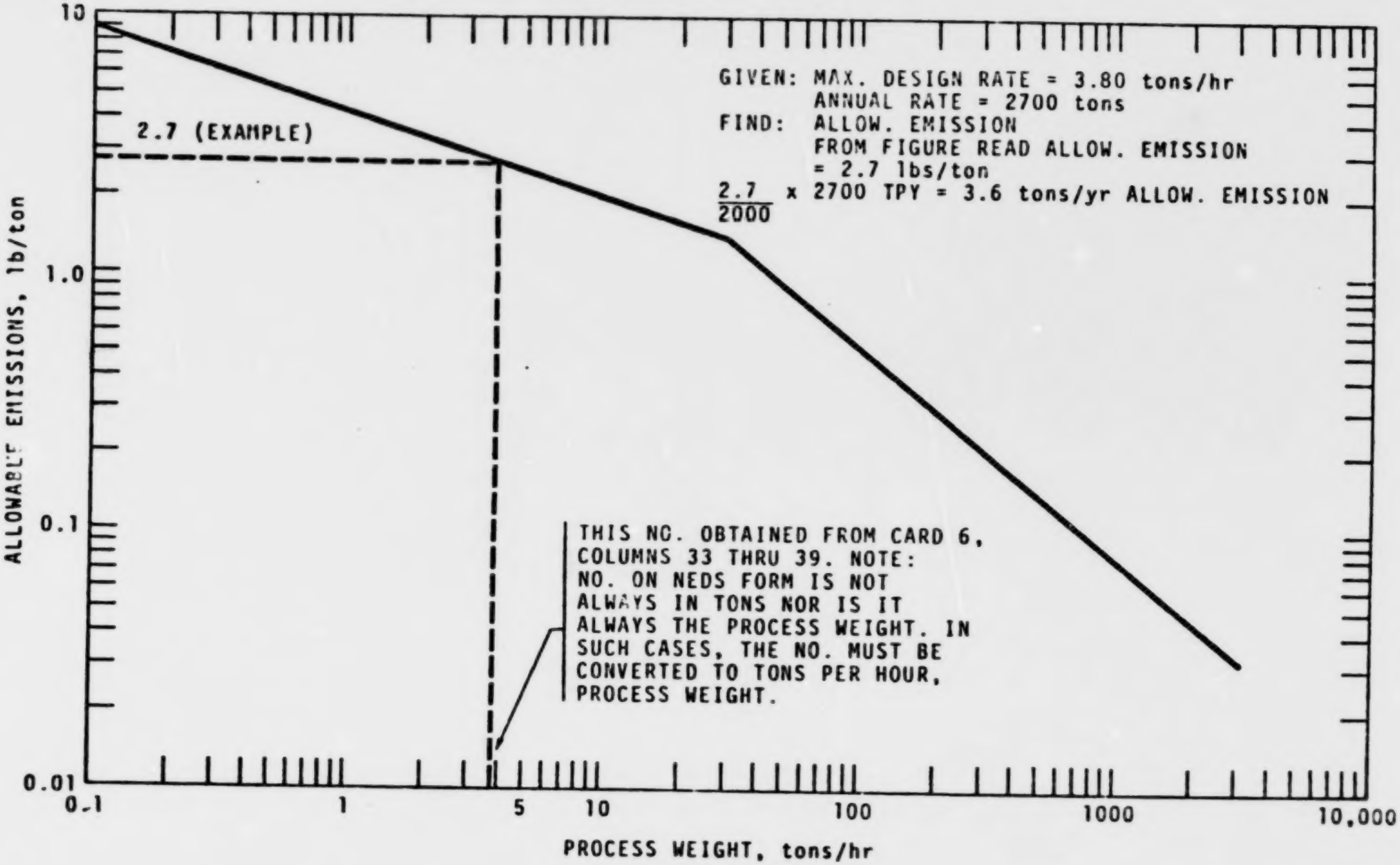


Figure 2.5 Example process weight regulation.

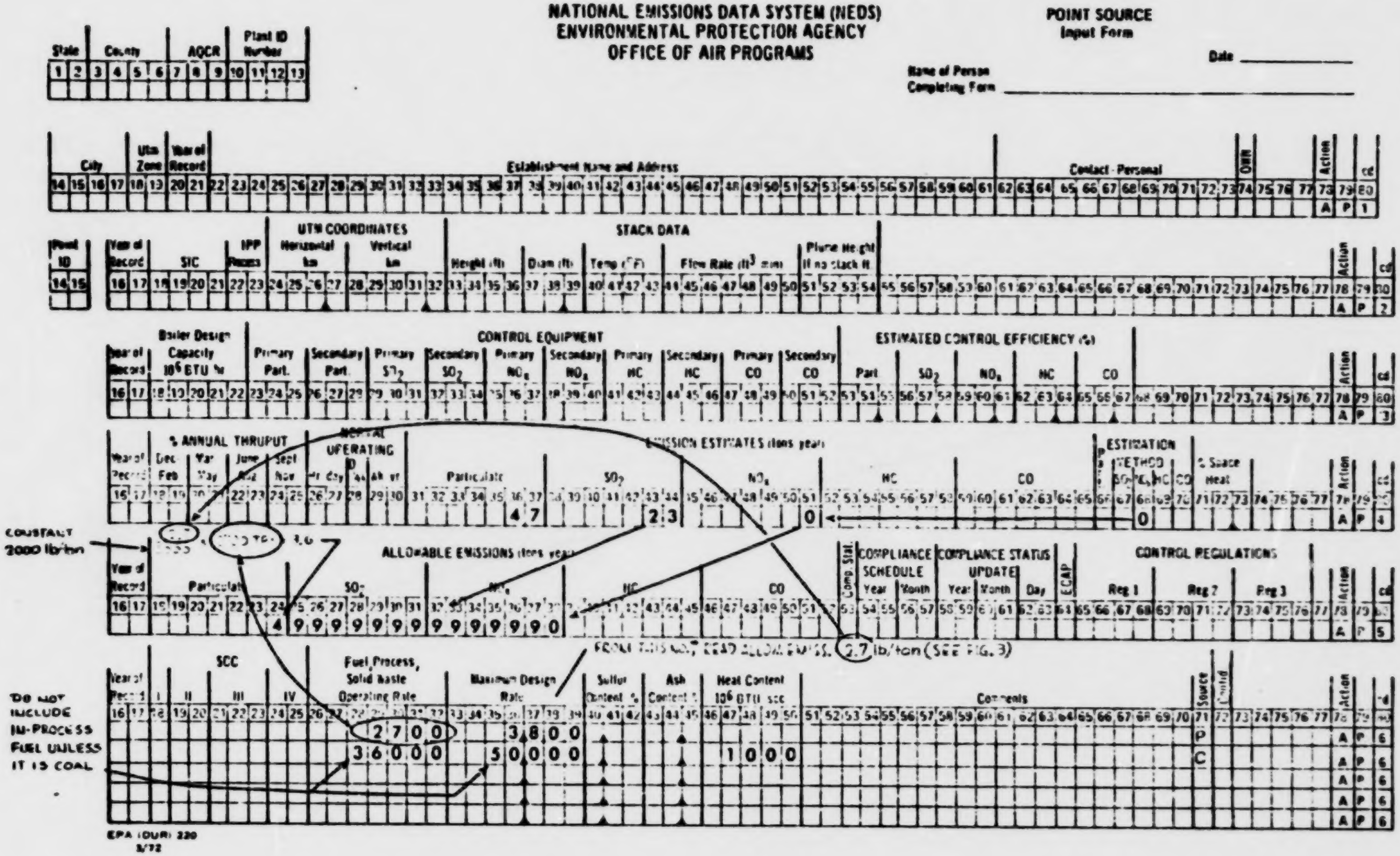

NATIONAL EMISSIONS DATA SYSTEM (NEDS)
ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF AIR PROGRAMS
POINT SOURCE
Input Form
Date
Name of Person Completing Form
State
County
AQCR
Plant ID Number
City
Utm Zone
Year of Record
Establishment Name and Address
Contact - Personal
Action
UTM COORDINATES
STACK DATA
CONTROL EQUIPMENT
ESTIMATED CONTROL EFFICIENCY (%)
% ANNUAL THRUPUT
NORMAL OPERATING
EMISSION ESTIMATES (tons year)
ALLOWABLE EMISSIONS (tons year)
COMPLIANCE SCHEDULE
COMPLIANCE STATUS UPDATE
CONTROL REGULATIONS
SCC
Fuel, Process, Solid Waste Operating Rate
Maximum Design Rate
Sulfur Content %
Ash Content %
Heat Content 10^6 BTU scc
Comments
4 7
2 3
0
0
4 9 9 9 9 9 9 9 9 9 9 9 9 0
2 7 0 0
3 6 0 0 0
3 8 0 0
5 0 0 0 0
1 0 0 0
P
C
A P 1
A P 2
A P 3
A P 4
A P 5
A P 6
CONSTANT 2000 lb/ton
3.6
FROM THIS NO. READ ALLOW. EMISS. 2.7 lb/ton (SEE FIG. 3)
DO NOT INCLUDE IN-PROCESS FUEL UNLESS IT IS COAL
EPA (DUR) 220 3/72

Figure 2.6 Calculation of allowable emissions for processes.

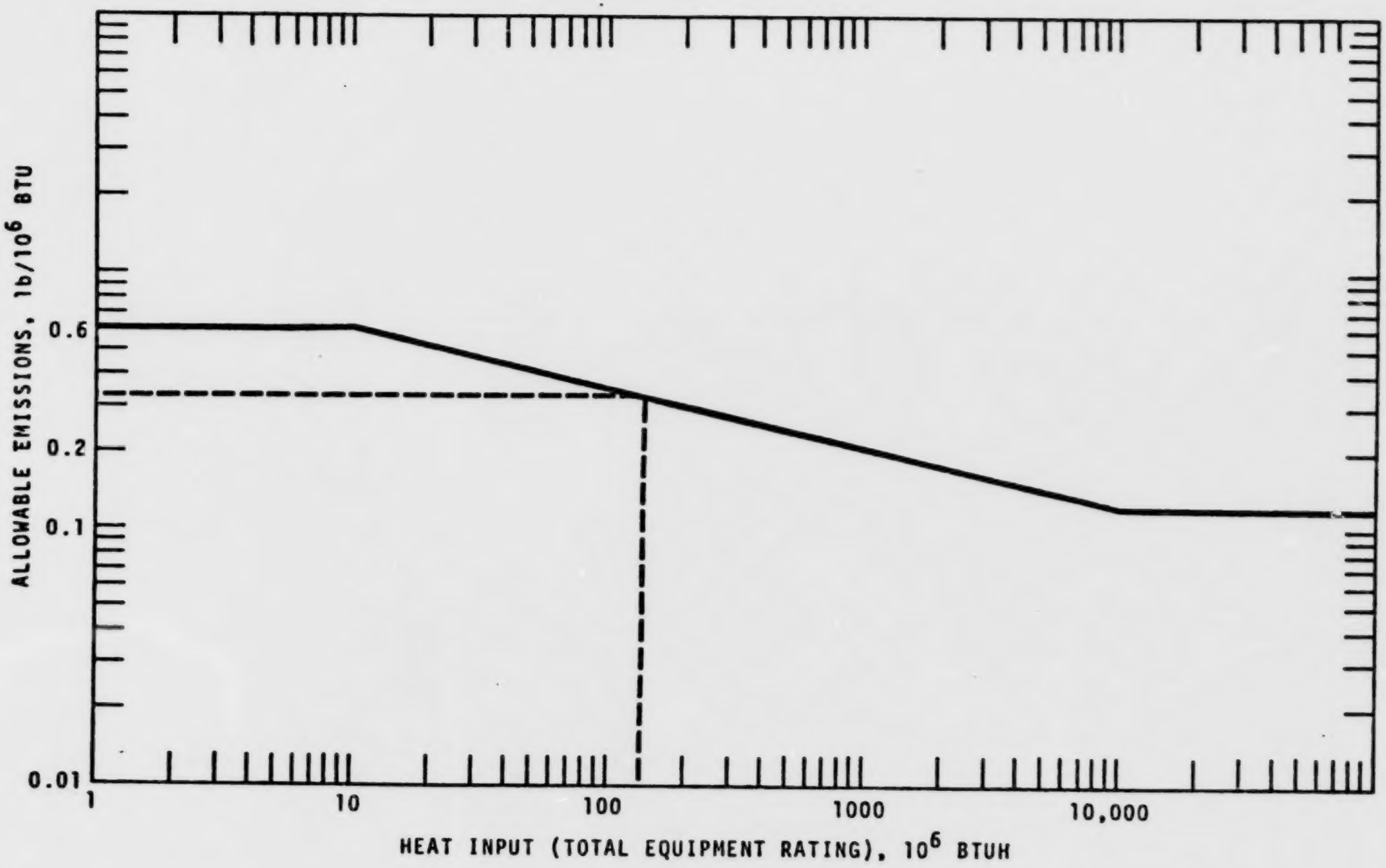


Figure 2.7 Example regulation for indirect heating equipment.

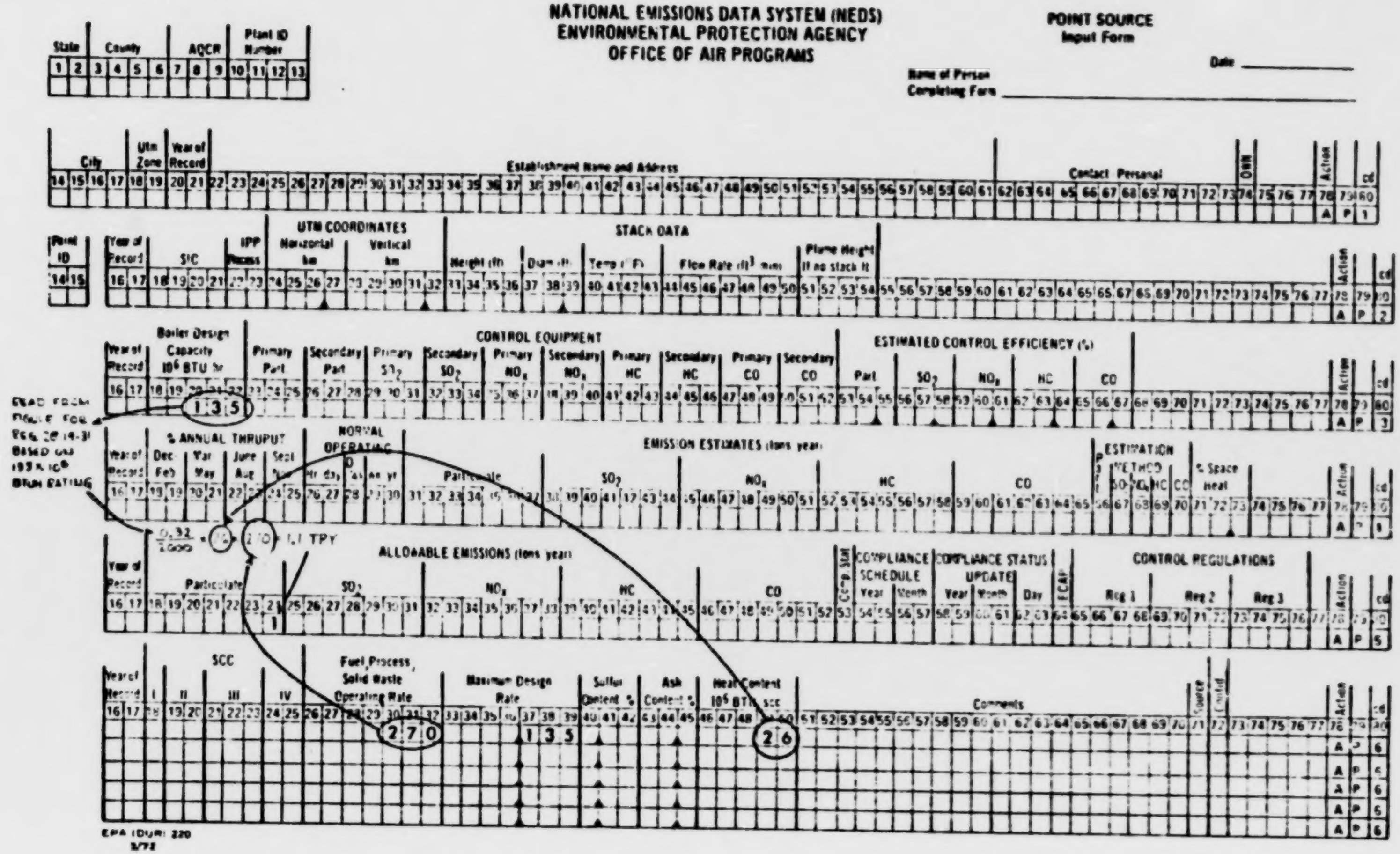
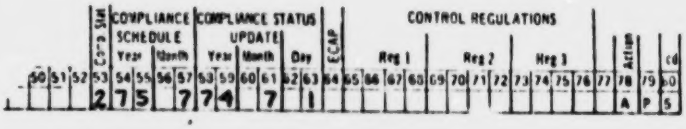
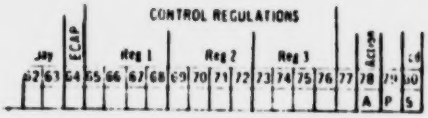

NATIONAL EMISSIONS DATA SYSTEM (NEDS)
ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF AIR PROGRAMS
POINT SOURCE
Input Form
Date
Name of Person Completing Form
State
County
AQCR
Plant ID Number
City
Utm Zone
Year of Record
Establishment Name and Address
Contact Personal
Action
STACK DATA
UTM COORDINATES
Horizontal km
Vertical km
SIC
IPP Process
Point ID
Height (ft)
Diam (ft)
Temp (°F)
Flow Rate (ft³/min)
Plume Height if no stack ft
Boiler Design Capacity 10⁶ BTU/hr
CONTROL EQUIPMENT
ESTIMATED CONTROL EFFICIENCY (%)
% ANNUAL THRUPUT
Dec Feb
Mar May
June Aug
Sept Nov
NORMAL OPERATING
EMISSION ESTIMATES (tons/year)
ESTIMATION METHOD
% Space Heat
ALLOWABLE EMISSIONS (tons/year)
Particulate
SO₂
NOₓ
HC
CO
COMPLIANCE SCHEDULE
COMPLIANCE STATUS UPDATE
ECAP
CONTROL REGULATIONS
Reg 1
Reg 2
Reg 3
SCC
Fuel, Process, Solid Waste Operating Rate
Maximum Design Rate
Sulfur Content %
Ash Content %
Heat Content 10⁶ BTU/scc
Comments
Source
EPA (DUR) 220 3/72
135
READ FROM FIGURE FOR REG. 2E 19-3! BASED ON 135 x 10⁶ BTUH RATING
0.32/2000 × (26) × (270) = 1.1 TPY
1
270
135
26

Figure 2.8 Calculation of allowable emissions for boilers.

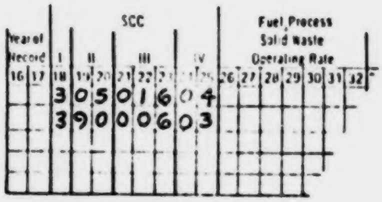
status. If a source is in compliance with existing regulations, enter the date that the regulations were enacted. If a source is not in compliance, enter the date of the most recent milestone reached on the compliance schedule (if any). Enter the Emergency Control Action Program (ECAP) as described in APTD-1135.


Comp Sch
COMPLIANCE SCHEDULE
Year
Month
COMPLIANCE STATUS UPDATE
Year
Month
Day
ECAP
CONTROL REGULATIONS
Reg 1
Reg 2
Reg 3
Action
cd
50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
2 7 5 7 7 4 7 1
A P 5

Data may be entered in the section titled Control Regulations (columns 65 through 76). However, this information does not appear on the point source printout.


CONTROL REGULATIONS
Day
ECAP
Reg 1
Reg 2
Reg 3
Action
cd
62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
A P 5

2.1.1.6 Card 6 - Data on the processes, fuel, and solid waste are entered on card 6. The Source Classification Code (SCC) and Emission Factor Listing should be used to give the proper SCC. The SCC identifies the process; at least one SCC must be entered per NEDS form. Up to five card 6's, each with its own SCC, can be filled out for each emission point; however, no two identical SCC's may appear on the same point source coding form. The single, most appropriate SCC that best describes the process is entered on card 6. However, do not try to "shoe-horn" a process into an SCC, rather use an "all other" SCC category. If there is a need for creation of a new SCC, this request can be made through the EPA

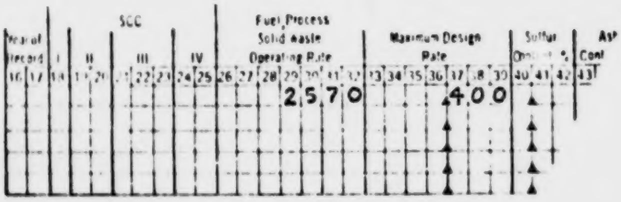

Year of Record
SCC
I
II
III
IV
Fuel, Process Solid Waste Operating Rate
16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
3 0 5 0 1 6 0 4
3 9 0 0 0 6 0 3

Regional Office. If an in-process fuel is used list the appropriate SCC on another card 6 of the same point ID.

If a single boiler burns more than one fuel type, enter an SCC for each fuel on one form. Each separate boiler, however, is given a separate point ID number and entered on a separate form.

A number of small processes or boilers that emit a very limited amount of pollutants may be combined onto one coding form. This can be done if the processes are the same or the boilers burn the same types of fuel. For example, if three small boilers each burn natural gas and distillate fuel oil and it is desired to combine them onto one coding form, the resulting form would show one SCC for a natural gas boiler and one for a distillate oil boiler. Fuel usages for the three boilers are combined and entered next to the appropriate SCC. The total of all three boiler design capacities is entered on card 3, and representative stack data is selected by use of the formula described in APTD-1135. Unless an emission source is very small, however, each source is assigned its own point ID and requires its own NEDS form.

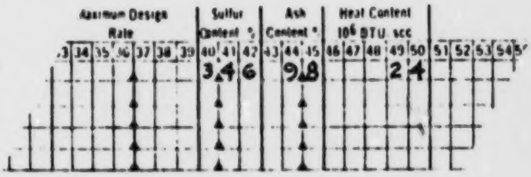
Operating rate indicates the actual annual fuel, process, or solid waste charging rate for the year of record, given in the units that correspond to each SCC, as given in the SCC


Year of Record
16 17
SCC
I
II
III
IV
18 19 20 21 22 23 24 25
Fuel, Process Solid Waste Operating Rate
26 27 28 29 30 31 32
2 5 7 0
Maximum Design Rate
33 34 35 36 37 38 39
4 0 0
Sulfur Content %
40 41 42
Ash Cont
43

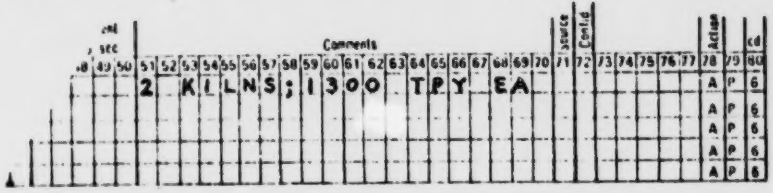
list. Take particular care to ensure that the numbers are entered in the units corresponding to the SCC.

Maximum design rate gives the maximum hourly rate of operation, again in the SCC units used for annual operating rate.

Enter sulfur or ash contents of a fuel in the appropriate columns. If this information is not applicable (e.g., the SCC is not for a fuel), enter zeros in columns 42 and 45. Zeros are also entered for solid waste unless the waste has a high or unusual sulfur content. Enter a heat content value for all fuels. For all other SCC's, including solid waste, enter a zero in column 50. The correct units are millions of BTU's per SCC unit.


Maximum Design Rate
Sulfur Content %
Ash Content %
Heat Content 10⁶ BTU SCC
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55
3.4 6
9.8
2.4

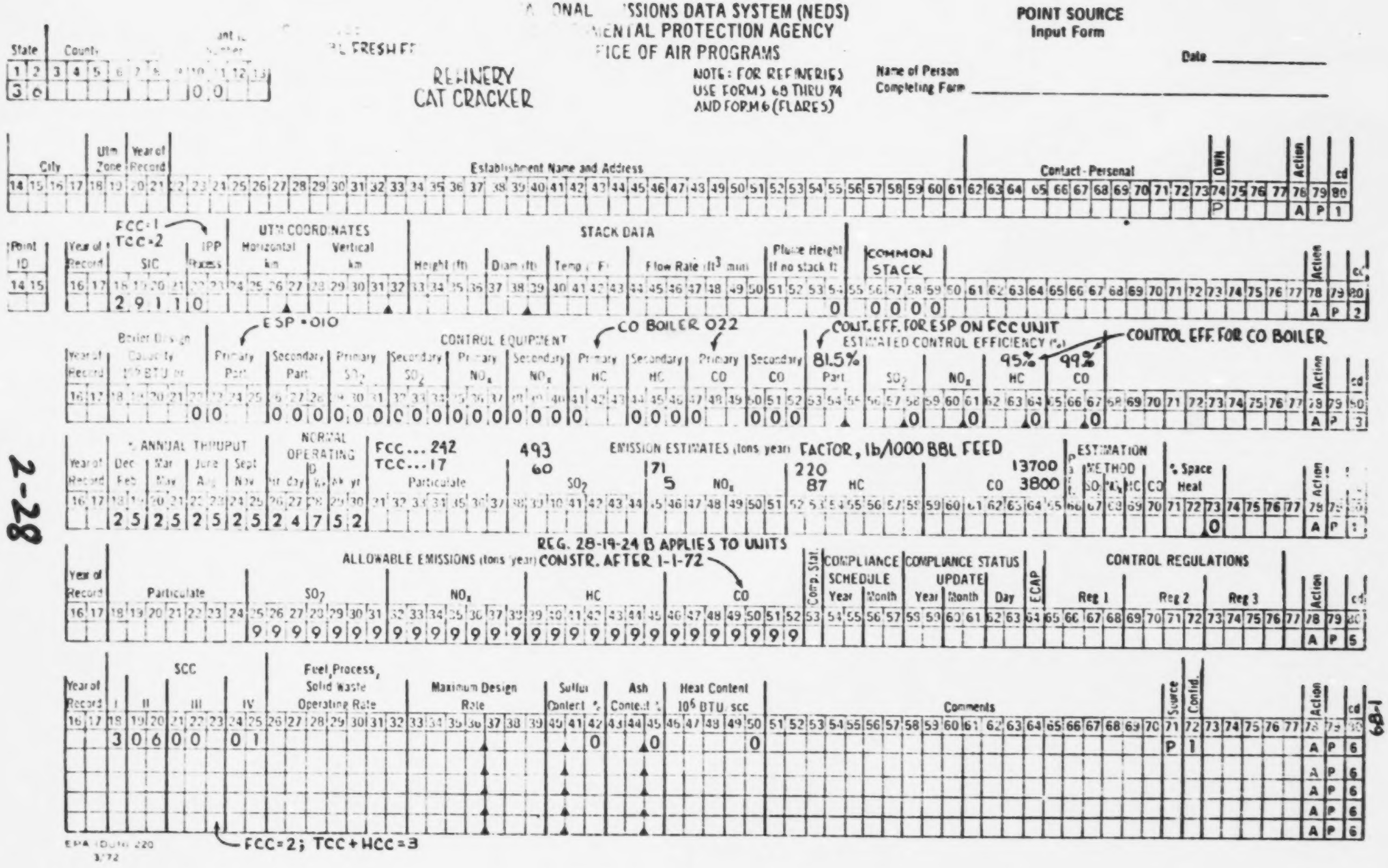
The comments section provides any necessary clarification of the information corresponding to the SCC. Comments must be entered whenever an SCC ending in 99 or an "all other" SCC is used. Note that only one line may be used per SCC. Comments may not extend beyond column 70 nor may they continue on the line below. Abbreviations must be intelligible. Standard abbreviations for use in comments are given in Appendix B. Source code and confidentiality of data are entered as described in APTD-1135.


SCC
Comments
Source
Confid
Action
Cd
48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
2 KILNS; 1300 TPY EA
A P 6
A P 6
A P 6
A P 6
A P 6

2.1.1.7 Standard Forms - Standard NEDS forms having a great deal of pre-entered data can be prepared for ordinary processes. An example standard form is shown in Figure 2.9. The use of pre-entered information reduces coding errors, saves time, and allows nontechnical personnel to perform large segments of work.

When compiling a set of standard forms, title and number each form for easy identification and access. In the margin enter any helpful information, such as identifying other forms for related processes. Note the SCC units on the form, as well as the state code. Since most counties do not have more than 99 plants, enter zeros in columns 10 and 11. Since ownership of any one type of process is normally the same, this code can be entered on the standard forms. Fill in the SIC and IPP codes, except for boilers, which are assigned the SIC describing the plant.

Usually it is known whether a process will entail a stack height or a plume height, and the appropriate zeros can be entered. If a source normally does not have a common stack, enter zeros. If the form is not for a boiler, enter a zero for boiler design capacity. For many pollutants control equipment is not applicable, and zeros can be entered in the columns for control equipment and efficiency. It is useful to note in the margin the codes for often-used control equipment and estimated control efficiencies if these are not reported by the source.



ONAL SSIONS DATA SYSTEM (NEDS)
NTAL PROTECTION AGENCY
ICE OF AIR PROGRAMS

POINT SOURCE
Input Form

State: 3 0
Plant ID Number: 0 0

REFINERY
CAT CRACKER

NOTE: FOR REFINERIES USE FORMS 68 THRU 74 AND FORM 6 (FLARES)

Name of Person Completing Form
Date

City | Utm Zone | Year of Record | Establishment Name and Address | Contact - Personal | OWN: P | Action: A | P | cd: 1

Point ID | Year of Record | SIC: 2 9 1 1 | IPP Process: 0 | UTM COORDINATES Horizontal km, Vertical km | STACK DATA: Height (ft), Diam (ft), Temp (°F), Flow Rate (ft³/min), Plume Height if no stack ft: 0 | COMMON STACK: 0 0 0 0 | Action: A P | cd: 2

FCC=1
TCC=2

Boiler Design Capacity 10⁶ BTU/hr: 0 0 | CONTROL EQUIPMENT: Primary Part, Secondary Part: 0 0 0; Primary SO₂: 0 0 0; Secondary SO₂: 0 0 0; Primary NOₓ: 0 0 0; Secondary NOₓ: 0 0 0; Primary HC: 0; Secondary HC: 0 0 0; Primary CO: 0; Secondary CO: 0 0 0 | ESTIMATED CONTROL EFFICIENCY (%): Part, SO₂: 0, NOₓ: 0, HC: 0, CO: 0 | Action: A P | cd: 3

ESP = 010
CO BOILER 022
CONT. EFF. FOR ESP ON FCC UNIT
81.5%
95%
99%
CONTROL EFF. FOR CO BOILER

% ANNUAL THRUPUT: Dec-Feb 2 5, Mar-May 2 5, June-Aug 2 5, Sept-Nov 2 5 | NORMAL OPERATING: hr/day 2 4, d/wk 7, wk/yr 5 2 | EMISSION ESTIMATES (tons/year): Particulate, SO₂, NOₓ, HC, CO | ESTIMATION METHOD: Part, SO₂, NOₓ, HC, CO | % Space Heat: 0 | Action: A P

FCC... 242
TCC... 17
493
60
71
5
220
87
13700
3800
FACTOR, lb/1000 BBL FEED

ALLOWABLE EMISSIONS (tons/year): Particulate; SO₂: 9 9 9 9 9 9 9; NOₓ: 9 9 9 9 9 9 9; HC: 9 9 9 9 9 9 9; CO: 9 9 9 9 9 9 9 | Comp. Stat. | COMPLIANCE SCHEDULE Year, Month | COMPLIANCE STATUS UPDATE Year, Month, Day | ECAP | CONTROL REGULATIONS Reg 1, Reg 2, Reg 3 | Action: A P | cd: 5

REG. 28-19-24 B APPLIES TO UNITS CONSTR. AFTER 1-1-72

SCC I, II, III, IV: 3 0 6 0 0 0 1 | Fuel, Process, Solid Waste Operating Rate | Maximum Design Rate | Sulfur Content %: 0 | Ash Content %: 0 | Heat Content 10⁶ BTU/scc: 0 | Comments | Source: P | Confid.: 1 | Action: A P | cd: 6
A P 6
A P 6
A P 6
A P 6

FCC=2; TCC+HCC=3

EPA (Durh) 220
3/72

1-89

Figure 2.9 Sample standard form.

Codes for year-round continuous operation of a source can be pre-entered. Recording the SCC listing emission factors in the margin saves time and insures use of the proper factor. If the source does not supply space heat, this entry can be made. Pre-entries are often made for some allowable emission information (if zero or unlimited), SCC, confidentiality, and source codes. If the SCC is not a fuel, enter zeros for sulfur, ash, and heat contents. For fuels, enter the typical heat contents.

2.1.2 Updating Point Source Data

Updating information in NEDS involves either entering data on new sources or updating information already in NEDS. For new sources, follow the procedures already described. For sources already in NEDS, compare the new information with the current NEDS printout. If the new information indicates more emission points than are entered in NEDS, add these points to the NEDS system. When data for an emission point require changes, these changes can be coded on IBM FORTRAN coding forms or on NEDS forms with the proper action (column 78) indicated. An IBM FORTRAN coding form is shown in Figure 2.10.

The three processes entailed in updating are: deletion, change, and addition. The deletion procedure is utilized to delete data on any plant, point within a plant, or process within a point that is invalid in the data bank. The change procedure is utilized to change any data field other than an

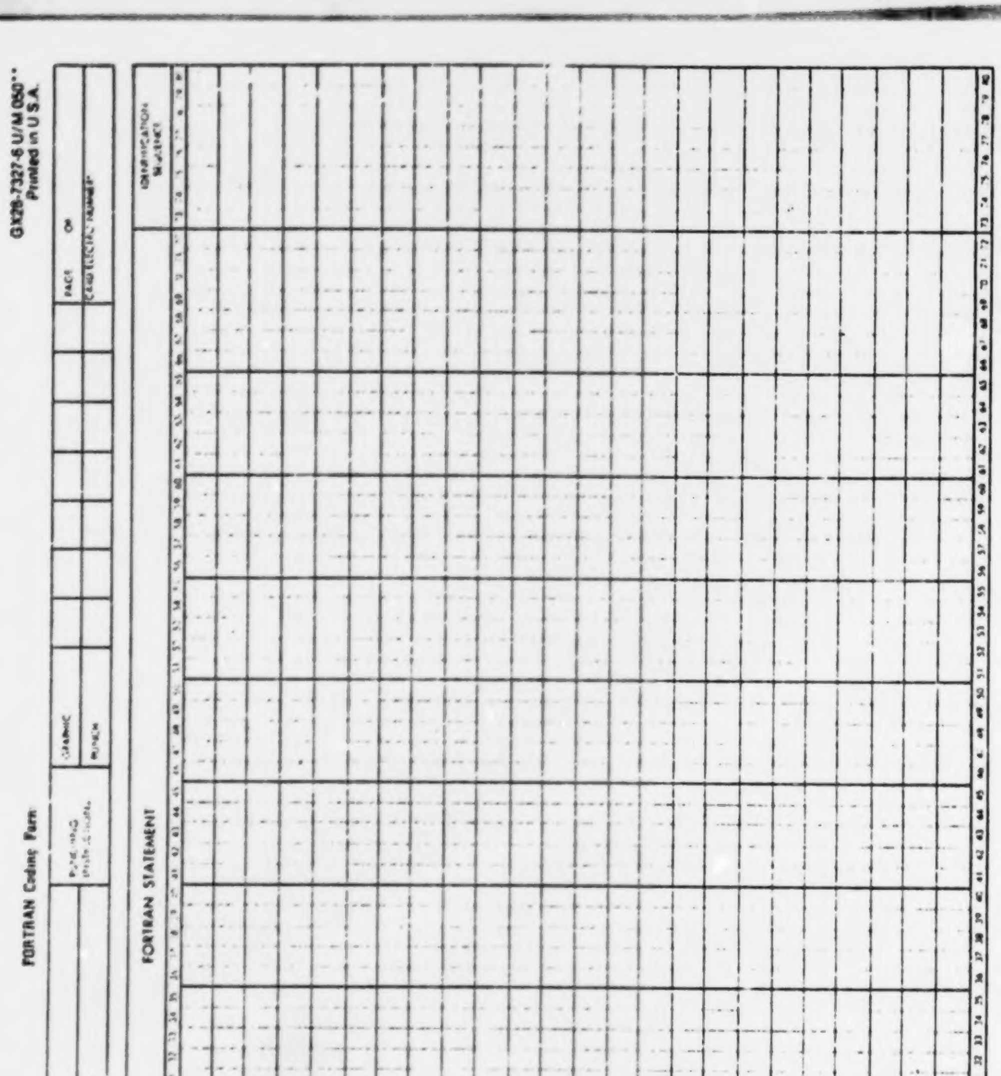

IBM
FORTRAN Coding Form
GX28-7327-6 U/M 050**
Printed in U.S.A.
PROGRAM
PROGRAMMER
DATE
GRAPHIC
PUNCH
PAGE OF
STATEMENT NUMBER
CONT.
FORTRAN STATEMENT

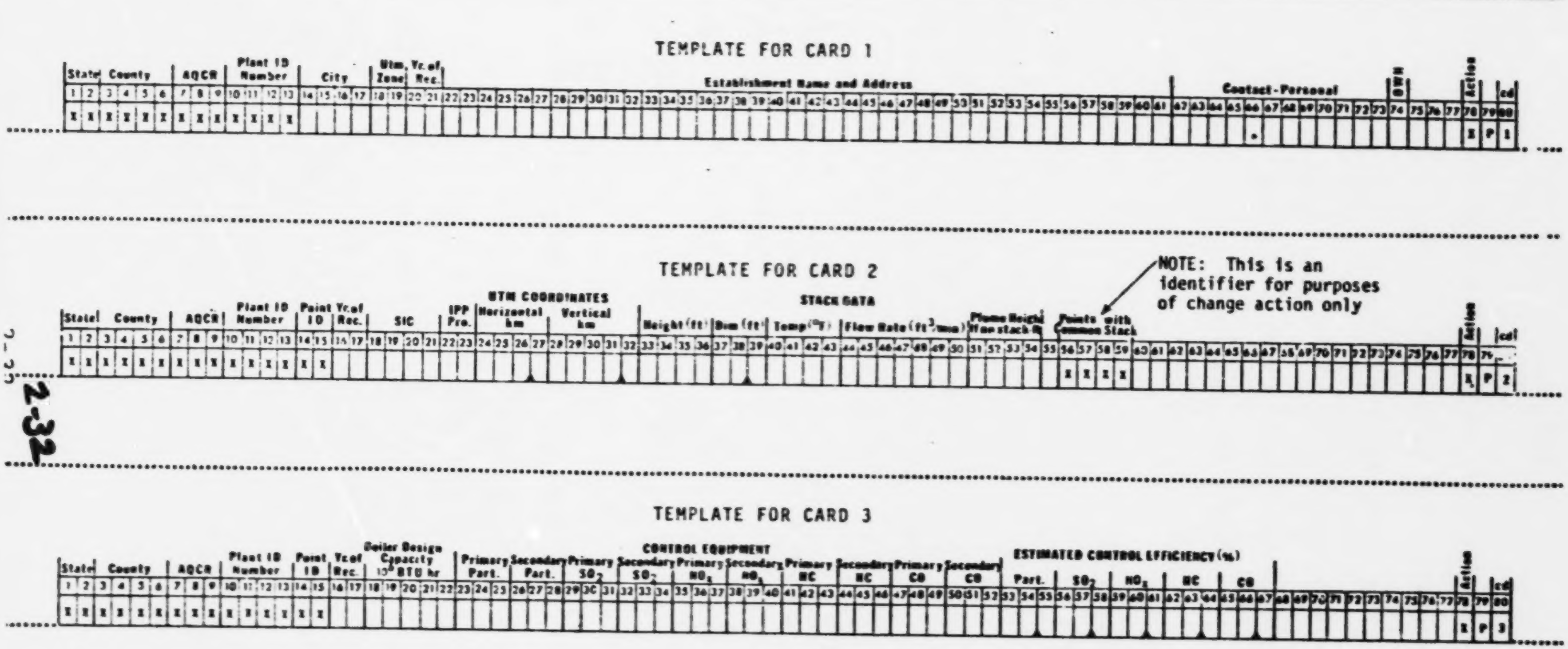
Figure 2.10 IBM FORTRAN coding form.

identifier in an existing record on the data bank. The addition procedure is utilized to add data on a new plant, point, or process or to re-add a plant, point, or process which was deleted to make a correction.

If the deletion, changes, and additions are coded correctly, they need not be separated, since they can be handled during a single computer run. The procedures are performed by the computer in the following order: delete, change, and add. A deletion and addition of the same card or cards for a given point are done on the same run. A deletion and change of the same card cannot be handled on the same run, nor can change and addition of the same card, since this would result in duplicate cards.

The update procedure is determined by the entry in column 78 on each card. If a D is coded and punched in column 78, the delete procedure will be activated; C denotes the change procedure, and A, the addition procedure.

For any update action the card affected must be properly identified. Figure 2.11 shows a template of each NEDS card that can be used with IBM FORTRAN coding forms. Full-sized templates which may be removed and used are included in Appendix D of this document. Source identifiers are indicated on the templates. No change procedure can be initiated unless all the identifier codes are completed. An example of a fully coded IBM FORTRAN form is shown in Figure 2.12. The identifier must always be filled out, and no



TEMPLATE FOR CARD 1

State
County
AQCR
Plant ID Number
City
Utm. Zone
Yr. of Rec.
Establishment Name and Address
Contact - Personal
OWN
Action
cd
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80
X X X X X X X X X X X X X
X P 1

TEMPLATE FOR CARD 2

NOTE: This is an identifier for purposes of change action only

State
County
AQCR
Plant ID Number
Point ID
Yr. of Rec.
SIC
IPP Pro.
UTM COORDINATES
Horizontal km
Vertical km
STACK DATA
Height (ft)
Dia (ft)
Temp (°F)
Flow Rate (ft³/min)
Plume Height if no stack
Points with Common Stack
Action
cd
X X X X X X X X X X X X X X X
X X X X
X P 2

TEMPLATE FOR CARD 3

State
County
AQCR
Plant ID Number
Point ID
Yr. of Rec.
Boiler Design Capacity 10⁶ BTU hr
CONTROL EQUIPMENT
Primary Part.
Secondary Part.
Primary SO₂
Secondary SO₂
Primary NOₓ
Secondary NOₓ
Primary HC
Secondary HC
Primary CO
Secondary CO
ESTIMATED CONTROL EFFICIENCY (%)
Part.
SO₂
NOₓ
HC
CO
Action
cd
X X X X X X X X X X X X X X X
X P 3

Figure 2.11 Template for IBM FORTRAN coding form.

TEMPLATE FOR CARD 4

						% ANNUAL THRUPUT				NORMAL OPERATION			EMISSION ESTIMATES (tons year)					ESTIMATION METHOD									
State	County	AQCR	Plant ID Number	Point ID	Yr of Rec.	Dec-Feb	Mar-May	June-Aug	Sept-Nov	Hr/day	day/wk	wk/yr	Particulate	SO_2	NO_x	HC	CO	Par	SO_2	NO_x	HC	CO	% Space Heat		Action		Cd
1 2	3 4 5 6	7 8 9	10 11 12 13	14 15	16 17	18 19	20 21	22 23	24 25	26 27	28	29 30	31 32 33 34 35 36 37	38 39 40 41 42 43 44	45 46 47 48 49 50 51	52 53 54 55 56 57 58	59 60 61 62 63 64 65	66	67	68	69	70	71 72 73	74 75 76 77	78	79	80
X X	X X X X	X X X	X X X X	X X																					X	P	4

TEMPLATE FOR CARD 5

												COMPLIANCE SCHEDULE		COMP. STATUS UPDATE				CONTROL REGULATIONS						
State	County	AQCR	Plant ID Number	Point ID	Yr of Rec.	Particulate	SO_2	NO_x	HC	CO	Comp. Stat.	Year	Month	Year	Month	Day	ECAP	Reg. 1	Reg. 2	Reg. 3		Action		Cd
1 2	3 4 5 6	7 8 9	10 11 12 13	14 15	16 17	18 19 20 21 22 23 24	25 26 27 28 29 30 31	32 33 34 35 36 37 38	39 40 41 42 43 44 45	46 47 48 49 50 51 52	53	54 55	56 57	58 59	60 61	62 63	64	65 66 67 68	69 70 71 72	73 74 75 76	77	78	79	80
X X	X X X X	X X X	X X X X	X X																		X	P	5

TEMPLATE FOR CARD 6

						SCC															
State	County	AQCR	Plant ID Number	Point ID	Yr of Rec.	I	II	III	IV	Fuel Process Solid Waste Operating Rate	Maximum Design Rate	% Sulfur Content	% ASH Content	Heat Content 10^6 BTU/scc	Comments	Source	Confid.		Action		Cd
1 2	3 4 5 6	7 8 9	10 11 12 13	14 15	16 17	18	19 20	21 22 23	24 25	26 27 28 29 30 31 32	33 34 35 36 37 38 39	40 41 42	43 44 45	46 47 48 49 50	51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70	71	72	73 74 75 76 77	78	79	80
X X	X X X X	X X X	X X X X	X X		X	X X	X X X	X X										X	P	6

Figure 2.11 (continued). Template for IBM FORTRAN coding form.

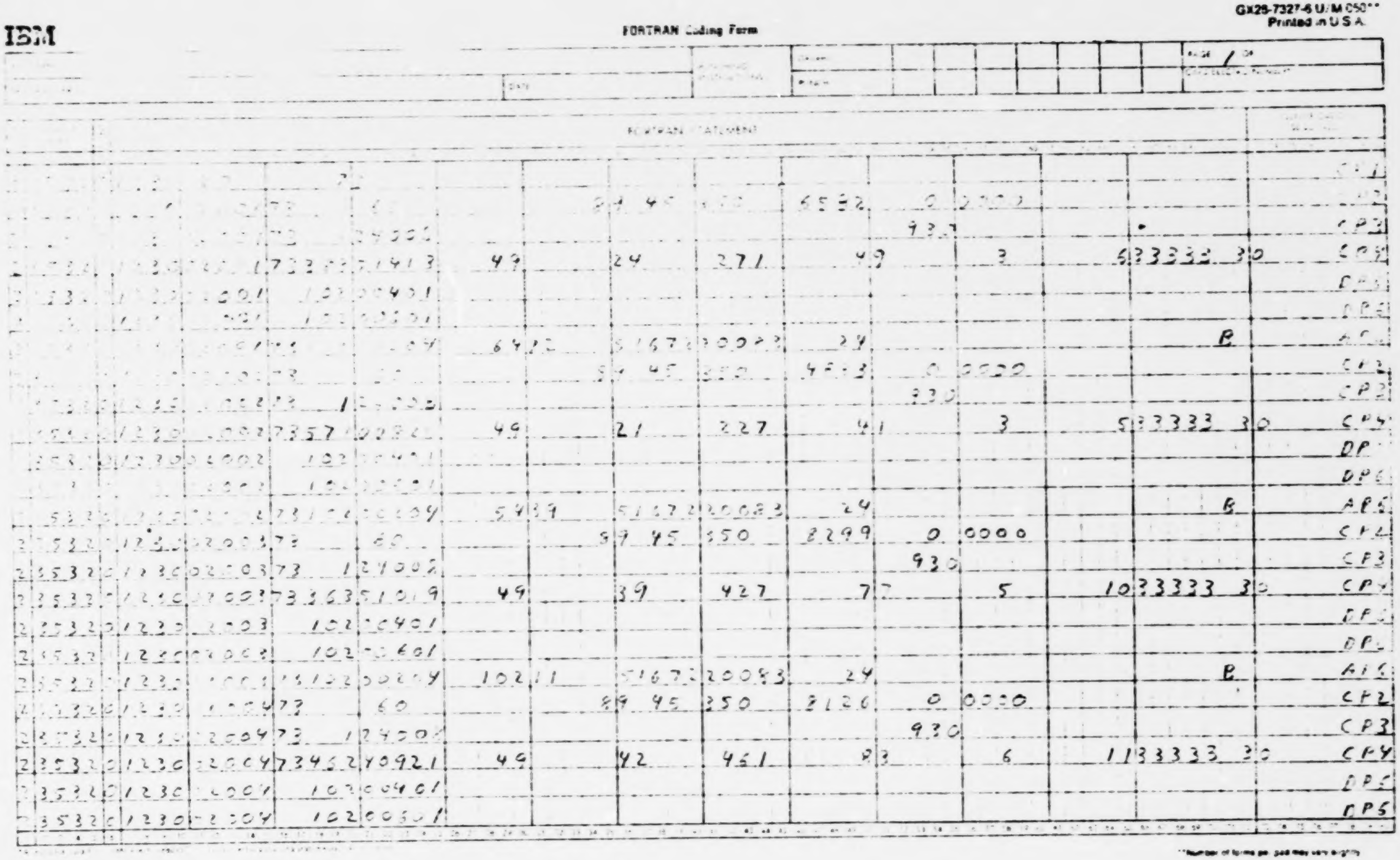


Figure 2.12 Example of a coded IBM FORTRAN form.

change in these columns may be made. To correct an identifier, code a delete and an add. In other words, the erroneous identity must be deleted from the program and the correct identity must be added. Columns 56 through 59 of card 2 are treated as an identifier when coding a change for card 2. In these cases, the entries in columns 56 through 59 must be identical to the information in the data bank. To add common stack information, even if these columns were originally blank, the user must follow a delete/add procedure.

When updating data on sources already in NEDS, always update the year of record on each card updated. When updating, the plant or point identification should not be changed unless it is necessary for correction. If the plant or point is changed, the EPA Regional Office should be notified of any changes.

2.1.2.1 Deletion Procedure - The deletion procedure is utilized to:

1. Delete data on any plant, point within a plant, or process within a point that is identified incorrectly. If a plant is initially coded for the wrong state, AQCR, or county, the identification is incorrect. Also, if an SCC is incorrectly coded, the identification is incorrect.

2. Delete an incorrect SCC by deleting a card 6 and adding the correct card 6 in the same computer run.

3. Delete an incorrect data field when the field should be blank. If the incorrect data field is on cards 2 to 5,

card 2 is deleted and data for the complete point (cards 2 to 6) are added with the incorrect data field left blank. If the incorrect data field is on card 6, card 6 is deleted then re-added with the incorrect data field left blank.

4. Delete a point or points when a change is made in the field for "Points with Common Stack" (card 2, columns 56-59). After the point or points are deleted, with a card 2 deletion, they must be re-added with all cards (2 to 6).

The deletion procedure is set up so that only a card 1, 2, or 6 is deleted. The deletion of a card 1 removes the complete array of plant data from the master file. Deletion of card 2 removes all data regarding that specific point from the master file. That is, cards 2 through 6 are automatically removed with the deletion of card 2. The deletion of a card 6 removes data on that specific process from the master file.

Use the following procedures and a blank NEDS Form (OMB No. 158-R009S) or an IBM FORTRAN coding form to delete information from the master file.

1. To delete information for an entire plant, complete the identification columns (1-13) for that plant and enter DP1 in columns 78 through 80.

2. To delete data on a specific point, complete the identification columns (1-15) for that point and enter DP2 in columns 78 through 80.

3. To delete data on a specific process, complete the identification columns (1-15 and 18-25) for that process and enter DP6 in columns 78 through 80.

4. If you are using a NEDS point source form, indicate the card on which the deletion occurs with an asterisk (*) in the margin of the form so that only that card will be keypunched.

5. Entering the proper information in the appropriate columns of an IBM FORTRAN form will also make the deletion.

Exercise care to ensure that only the desired data for plants, points, or SCC's are deleted. Once the deletion is completed, retrieval of lost data is impossible. Use a current NEDS point source printout to double check identifications.

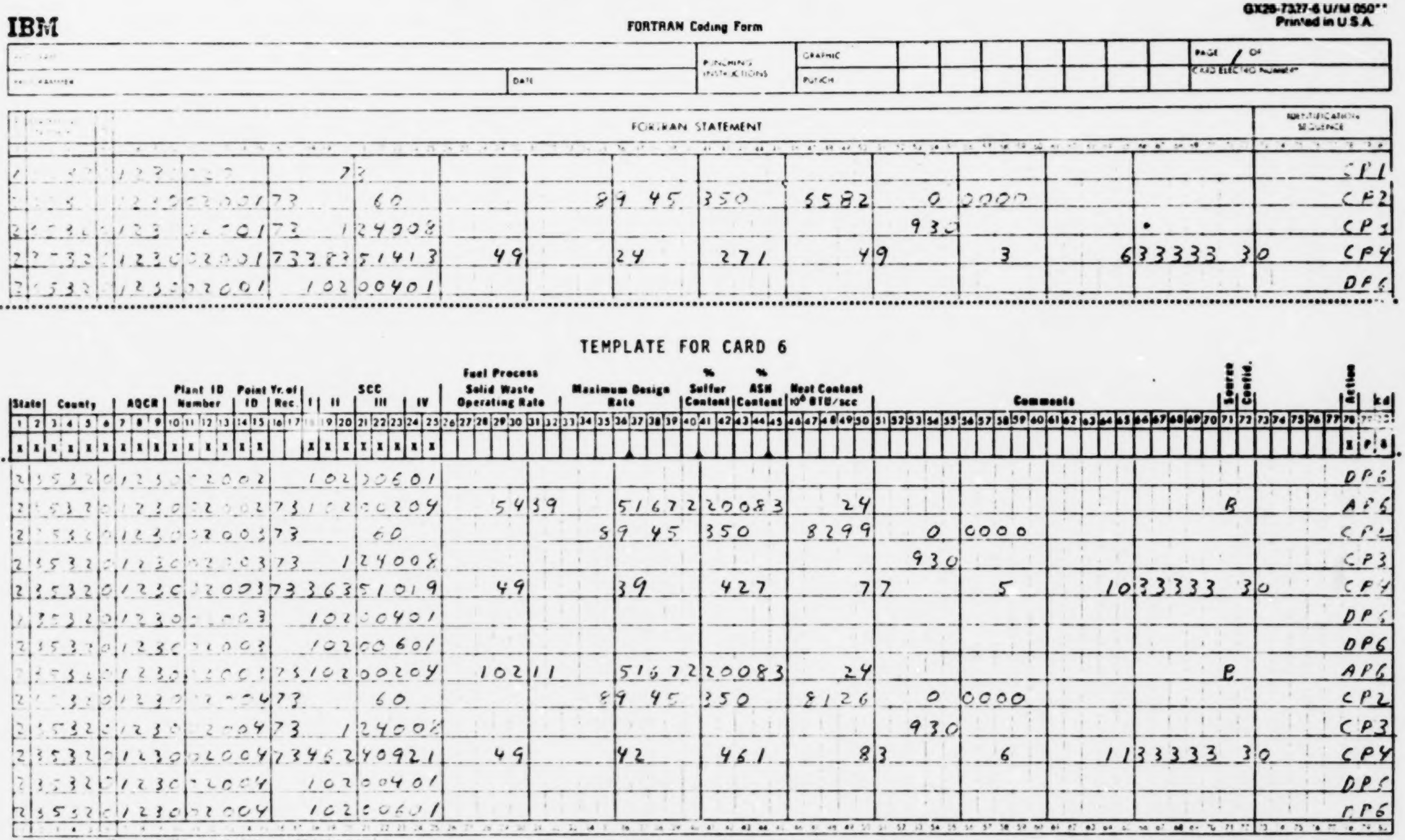
An example of how a template can be helpful in coding a delete action on an IBM FORTRAN form is shown in Figure 2.13.

2.1.2.2 Change Procedure - The change procedure is utilized to:

1. Change any data fields, except "Points with Common Stack," which are blank or incorrect on the NEDS point source.

2. Change any data field, except "Points with Common Stack," that has changed as a result of a change in process, design, or operating rate.

The change procedure is set up so that any data field on cards 1 to 6 can be changed. To minimize both coding errors and keypunch errors, code only the data field that is to be changed. Changes must be consistent with all coding procedures presented herein and in Chapter 4, APTD-1135.



IBM

FORTRAN Coding Form

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PAGE 1 OF

PUNCHING INSTRUCTIONS	GRAPHIC
	PUNCH

FORTRAN STATEMENT

```
1 [illegible] 123 [illegible]        73                                                                      CP1
2 532 12302 2001 73     60              89 45 350   5582   0 0000                                            CP2
2 2532 123 22001 73    1 24008                              930                                              CP3
2 2532 1230 22001 73383 51413   49      24    271        49     3          633333 30                         CP4
2 2532 12302 2001   102 00401                                                                                DP6
```

TEMPLATE FOR CARD 6

State	County	AQCR	Plant ID Number	Point ID	Yr. of Rec.	SCC I	SCC II	SCC III	SCC IV	Fuel Process Solid Waste Operating Rate	Maximum Design Rate	% Sulfur Content	% ASH Content	Heat Content 10⁶ BTU/scc	Comments	Source	Confid.	Action	kd
1 2	3 4 5 6	7 8 9	10 11 12 13	14 15	16 17	18	19 20	21 22 23	24 25	26 27 28 29 30 31 32	33 34 35 36 37 38 39	40 41 42	43 44 45	46 47 48 49 50	51–70	71	72	78	79 80
X X	X X X X	X X X	X X X X	X X		X	X X	X X X	X X									X	P 6

```
2 35320 1230 22002    102 00601                                                                              DP6
2 35320 1230 22002 73102 00204   5439        51672 20083       24                            B               AP6
2 35320 1230 22003 73      60              89 45 350   8299     0 0000                                       CP2
2 35320 1230 22003 73    1 24008                                930                                          CP3
2 35320 1230 22003 73363 51019     49      39    427        77       5         1033333 30                    CP4
2 35320 1230 22003    102 00401                                                                              DP6
2 35320 1230 22003    102 00601                                                                              DP6
2 35320 1230 22003 73102 00204  10211        51672 20083       24                            B               AP6
2 35320 1230 22004 73      60              89 45 350   8126     0 0000                                       CP2
2 35320 1230 22004 73    1 24008                                930                                          CP3
2 35320 1230 22004 73462 40921     49      42    461        83       6         1133333 30                    CP4
2 35320 1230 22004    102 00401                                                                              DP6
2 35320 1230 22004    102 00601                                                                              DP6
```

**Number of forms per pad may vary slightly

Figure 2.13 Example delete action using template.

Use the following procedures and a blank NEDS form or IBM FORTRAN form to change any data field in a point source record on this master file.

1. Complete only the card on which the change is coded.

2. Code only the complete data field that contains the change, using coding procedures presented in APTD-1135.

3. Complete columns 1 to 12 of card 1, columns 1 to 15 and 56 to 59 of cards 2, columns 1 to 15 of cards 3 to 5, and columns 1 to 15 and 18 to 25 of card 6 with the identification as given in the NEDS point source printout.

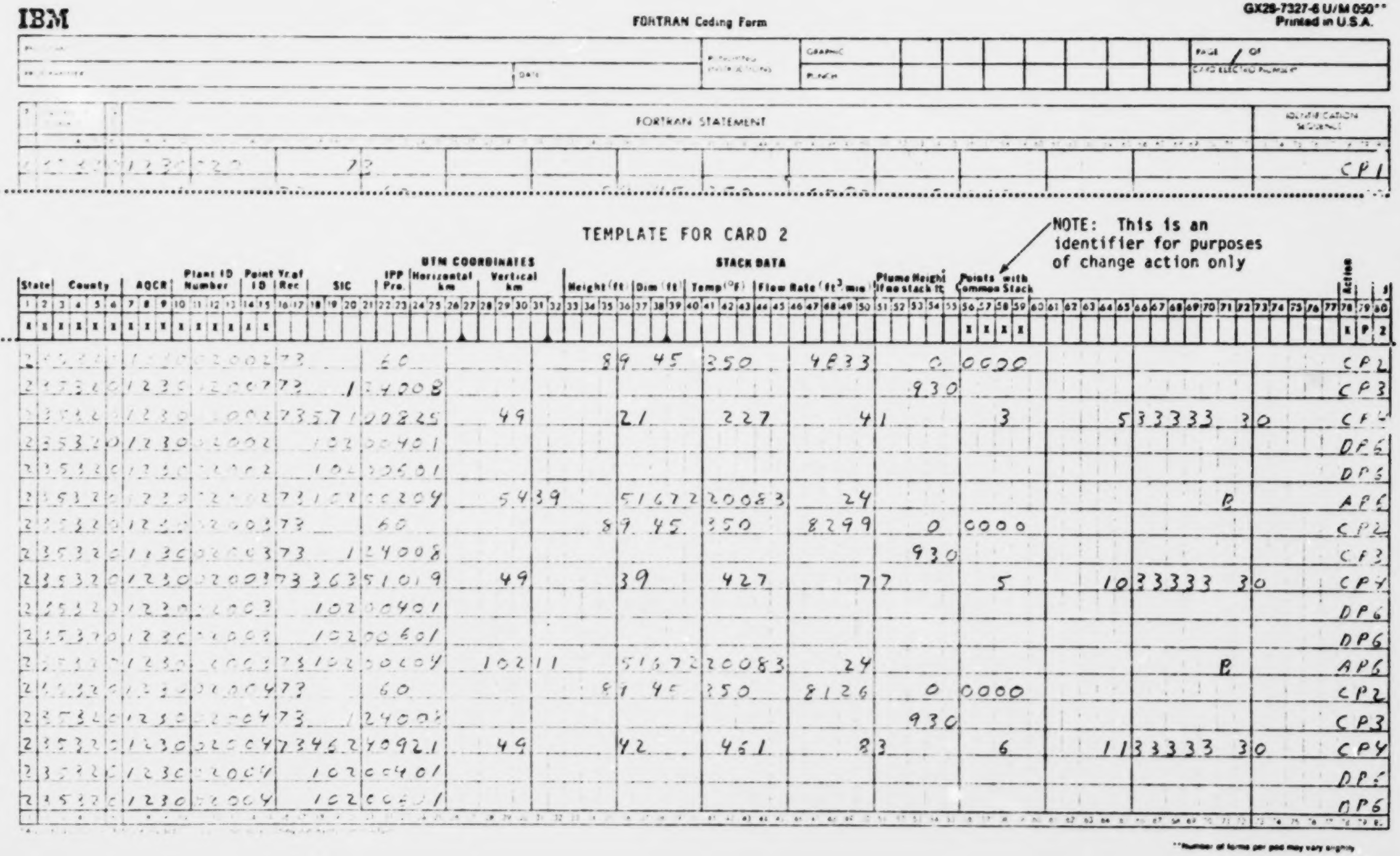
4. Enter CP in columns 78 and 79, and the appropriate card number in column 80.

5. If you are using a NEDS form, indicate the card on which the change occurs with an asterisk (*) in the margin of the form so that only that card will be keypunched.

6. Entering the proper information in the appropriate columns of an IBM FORTRAN form is an alternative method of making the change.

Exercise care to ensure that only the desired data field is changed and that the correct identification is used.

For sources ceasing operation, enter code 7 in columns 66 through 70 of card 4. This will denote that the source has ceased operation and that the emissions are zero. A plant or point ceasing operation should not be deleted from the NEDS data bank. An example of a change action using a template is shown in Figure 2.14.



IBM

FORTRAN Coding Form

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PAGE 1 OF

FORTRAN STATEMENT

IDENTIFICATION SEQUENCE

```
2353201230020     73                                                         CP1
```

TEMPLATE FOR CARD 2

NOTE: This is an identifier for purposes of change action only

State	County	AQCR	Plant ID Number	Point ID	Year of Rec	SIC	IPP Pro.	UTM COORDINATES Horizontal km	UTM COORDINATES Vertical km	STACK DATA Height (ft)	Dim (ft)	Temp (°F)	Flow Rate (ft³/min)	Plume Height if no stack ft	Points with Common Stack		Action
1 2	3 4 5 6	7 8 9	10 11 12 13	14 15	16 17	18 19 20 21	22 23	24 25 26 27	28 29 30 31 32	33 34 35 36	37 38 39	40 41 42 43	44 45 46 47 48 49 50	51 52 53 54 55	56 57 58 59	60–77	78 79 80
X X	X X X X	X X X	X X X X	X X											X X X X		X P 2

```
23532012300200273   60            89 45 350   4833   0 0000                  CP2
23532012300200273  124008                           930                      CP3
2353201230020027357100225   49     21    227     41      3      533333 30    CP4
23532012300200  10200401                                                    DP6
23532012300200  10200601                                                    DP6
2353201230020027310200204   5439   5167220083   24                    B      APG
23532012300200373   60            89 45 350   8299   0 0000                  CP2
23532012300200373  124008                           930                      CP3
2353201230020037336351019   49     39    427     77      5     1033333 30    CP4
23532012300200  10200401                                                    DP6
23532012300200  10200601                                                    DP6
2353201230020037310200604  10211   5167220083   24                    B      APG
23532012300200473   60            89 45 350   8126   0 0000                  CP2
23532012300200473  124008                           930                      CP3
2353201230020047346240921   49     42    461     83      6     1133333 30    CP4
23532012300200  10200401                                                    DP6
23532012300200  10200601                                                    DP6
```

**Number of forms per pad may vary slightly

Figure 2.14 Example change action using template with FORTRAN form.

2.1.2.3 Addition Procedure - The addition procedure is used to add data on new plants, points within existing plants, or processes within a given point. Also, the addition procedure is used to re-add data on plants, points, or processes which were deleted for purposes of correcting the identification of creating a blank in an information field. Use the standard NEDS point source form or the IBM FORTRAN coding form and the coding procedures as previously shown.

The only problem that could result from addition of data on new points is a duplicate record. Use a current point source listing to obtain identifications of plants currently in NEDS. New plant identification numbers are assigned by the NEDS contact personnel in each EPA Regional Office.

Where approval has been given to construct a new source but operation has not begun, enter a code 6 on card 4, columns 66 through 70. This code defines new nonoperating sources.

An example of an add action using a template is shown in Figure 2.15.

2.1.3 Edit/Check Procedures

After the NEDS forms are keypunched, they are run through the EPA edit/check program, which detects mechanical errors such as missing SCC's or embedded blanks. The NEDS Edit Listing consists of four separate types of listings. Some of the listings are actual rejections while others are only listings of sorted data and file transactions.

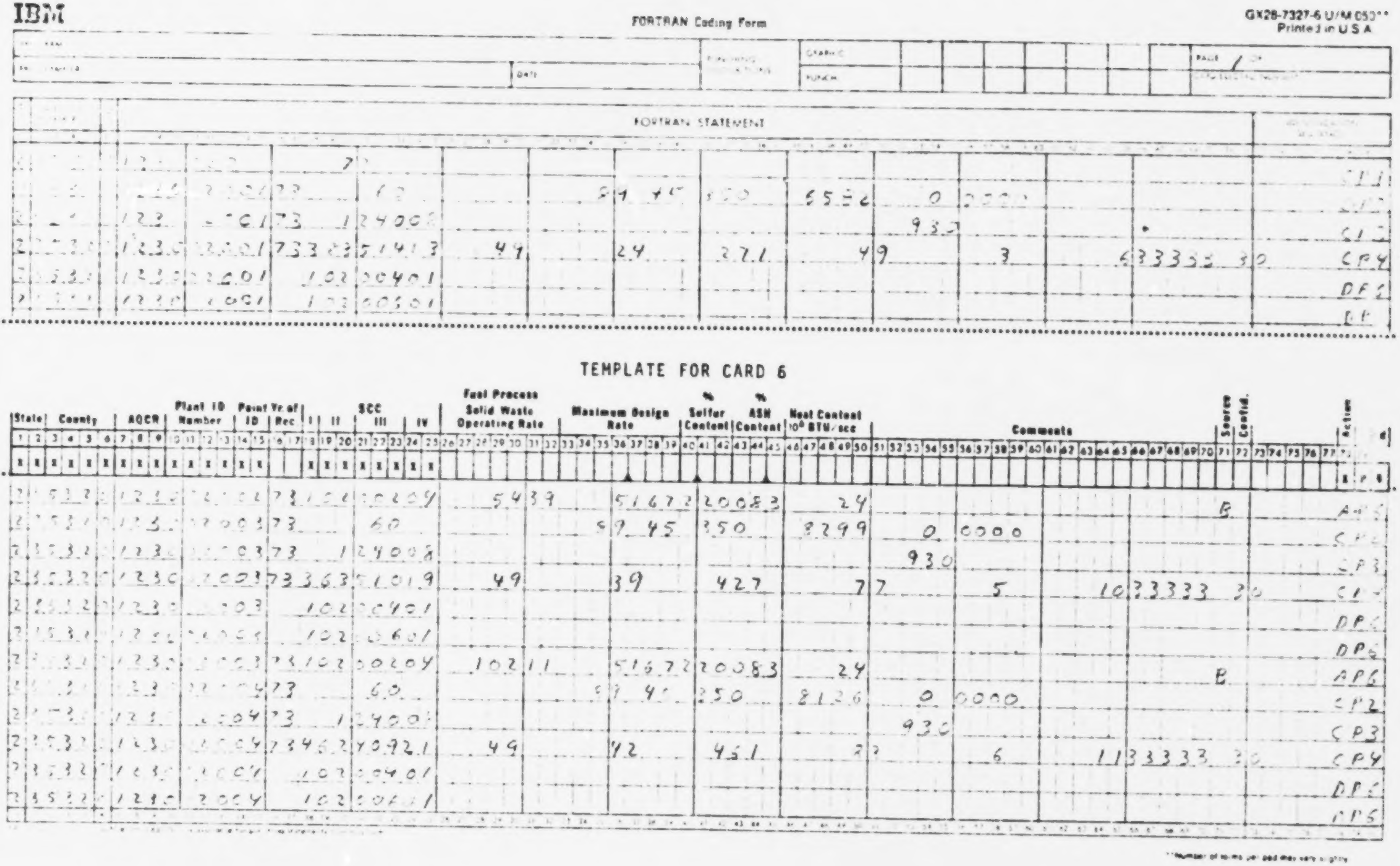

IBM
FORTRAN Coding Form
GX28-7327-6 U/M 050**
Printed in U.S.A.
FORTRAN STATEMENT
TEMPLATE FOR CARD 6
State
County
AQCR
Plant ID Number
Point ID
Yr. of Rec.
SCC I II III IV
Fuel Process Solid Waste Operating Rate
Maximum Design Rate
% Sulfur Content
% ASH Content
Heat Content 10⁶ BTU/scc
Comments
Source
Confid.
Action
APS
CP2
CP3
CP4
DP5
DP6
APG
CP2
CP3
CP4
DP5
DP5

Figure 2.15 Example add action using template with FORTRAN form.

Listing I, Figure 2.16, is a list in card format only for cards with a source code in column 79 other than "A" or "P" or for point source cards with a card number in column 80 other than 1 to 6. The message "Invalid Control Value" is printed under the card listing. The cards are rejected; therefore, the data is not updated.

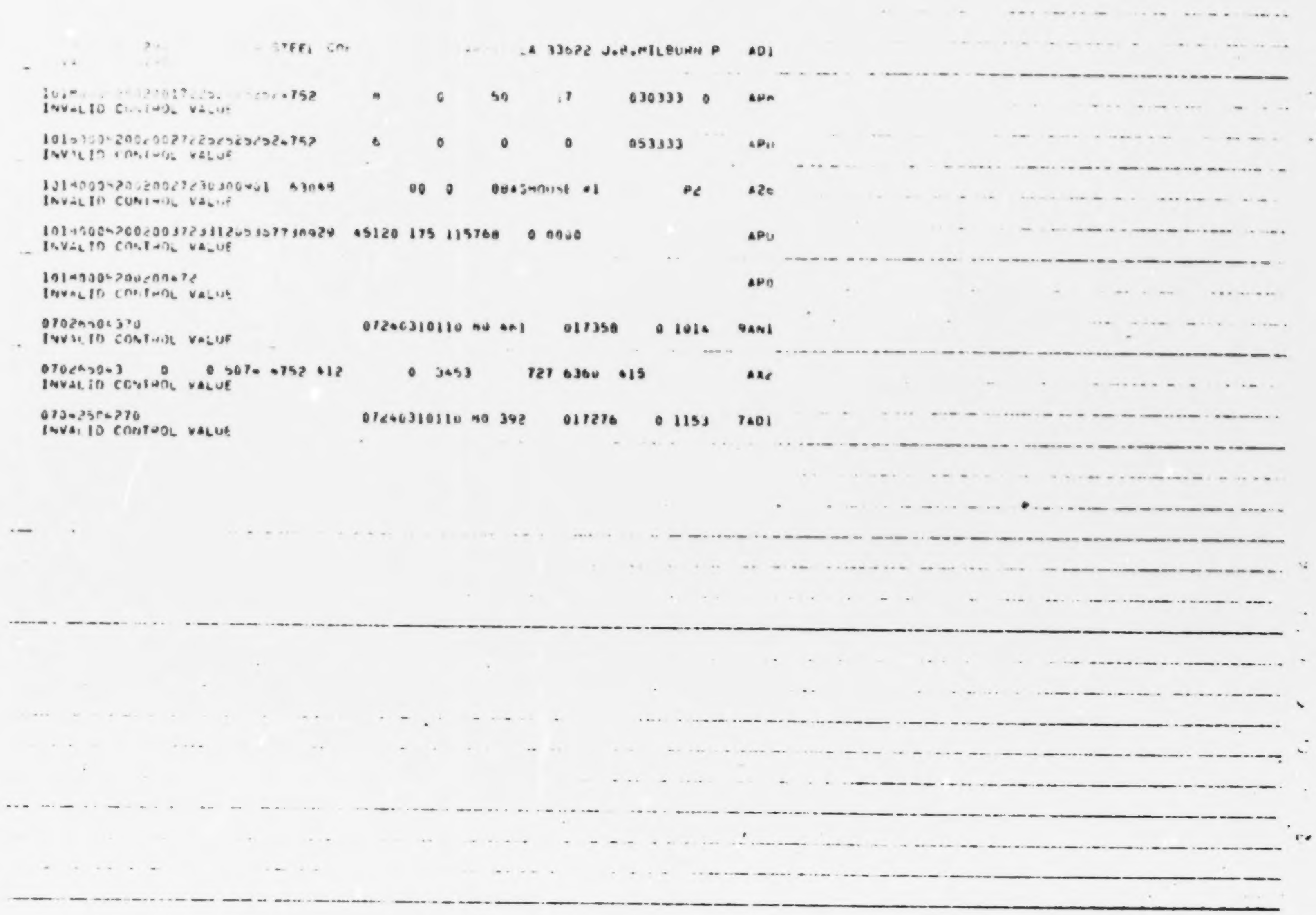
Listing II, Figure 2.17, is a listing of input data sorted by state, county, plant, point, and reformatted from an 80 column card input to a 97 character line. The format for this listing is as follows:

Point Source Cards:

Column	Name
1-2	State code
3-6	County code
7-9	999-no meaning
10-13	Plant ID
14-15	Point ID
16-23	SCC code
24-26	AQCR
27-97	Input card data starting with Plant ID

Area Source Cards:

Column	Name
1-2	State code
3-6	County code
7-9	AQCR
10-23	Blank
24-97	Input card data starting with AQCR



```
            2[illegible]          STEEL CO[illegible]            [illegible] LA 33622 J.R.MILBURN P   AD1

101[illegible]0220017[illegible]4752     8      6      50     17      030333  0    APA
INVALID CONTROL VALUE

1014300420020027225252525244752     6      0      0      0       053333        APU
INVALID CONTROL VALUE

10140004200200272303000401  63049        00  0    004SHOUSE #1           P2     A2C
INVALID CONTROL VALUE

10146004200200372331205357730929  45120 175 115768   0 0000                APU
INVALID CONTROL VALUE

10149004200200472                                                          APO
INVALID CONTROL VALUE

07026404370                07246310110 N0 441    017358    0 1014    9AN1
INVALID CONTROL VALUE

0702645043    0     0 5074 4752 412       0  3453      727 6360  415         AX2
INVALID CONTROL VALUE

07342504270                07246310110 N0 392    017276    0 1153    7AD1
INVALID CONTROL VALUE
```

Figure 2.16 Edit/check printout Listing I -

invalid control codes

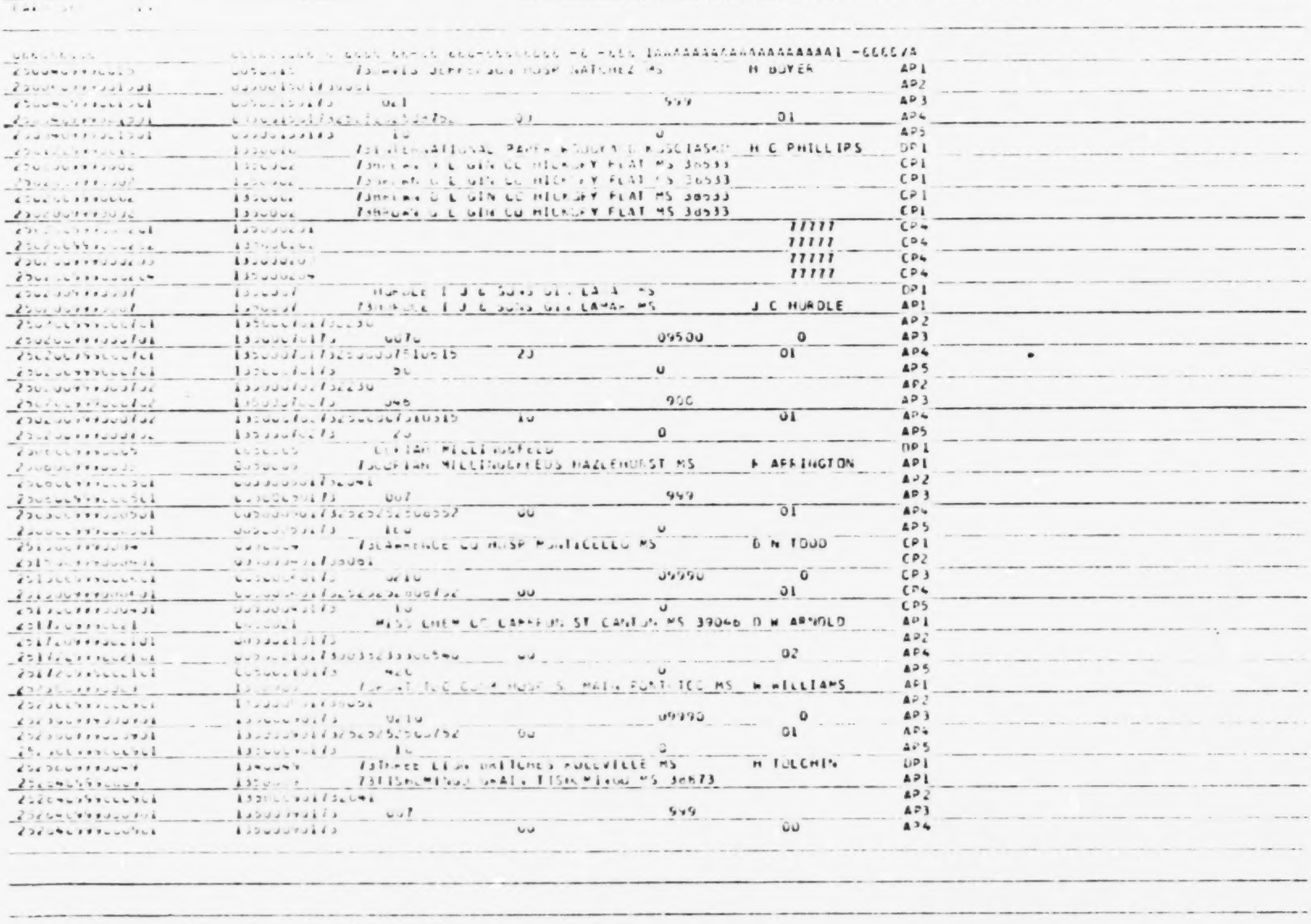


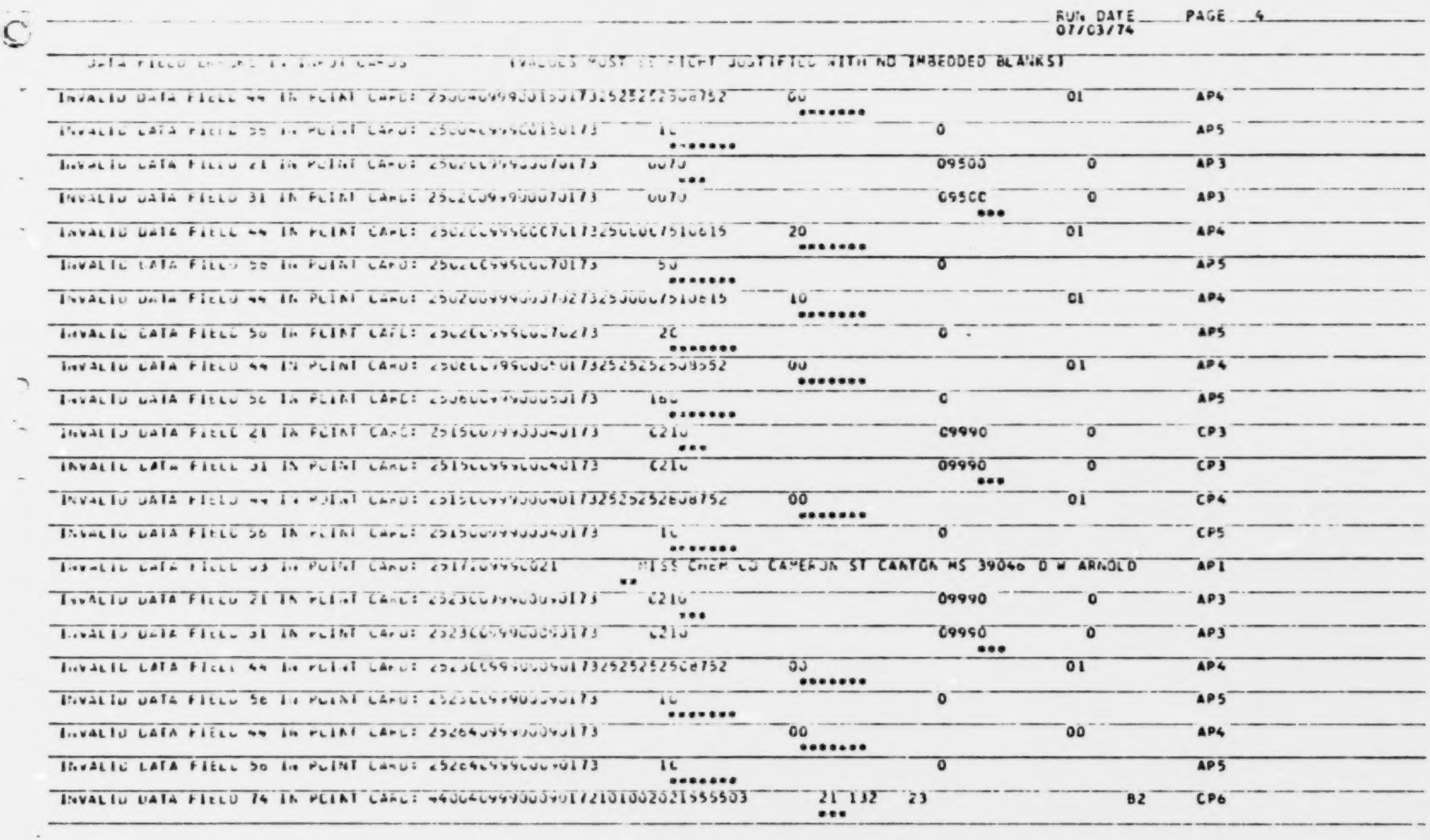
Figure 2.17 Edit/check printout Listing II - data listing.

The only check required on this listing is to see that all data has the correct state code by checking the first and last line of this listing. This listing will be used later to check other errors.

Listing III, Figure 2.18, is titled "Data Field Errors in Input Cards." This is the fourth listing in the printout, but the next listing to check. This listing consists of the phrase "Invalid Data Field X in Point (or Area) Card" followed by an 80 column card listing. The field numbers (X) are meaningless as the incorrect field is underlined with asterisks. If multiple fields of a single card are in error, each error will appear as a separate line of print. The following errors will be underlined in this listing:

1. Embedded blanks--any numeric field with an embedded blank will be underlined.
2. Numeric fields--any numeric field with nonnumeric data will be underlined.
3. Identification fields--any field classified as identification (state, county, plant, point, AQCR, and SCC) which is blank will be underlined.
4. Year of record--year of record must be completed on cards 1 and 2 and must be in range of 1960 to 1979.
5. State number--state number will be underlined if greater than 55.
6. Points with common stack--if the action code is add, the point ID must be within the interval for the points with common stack, or the points with common stack field will be underlined. If the action code is change, the points with common stack field must be the same as originally stored.

The errors in Listing III will cause the complete card to be rejected and will sometimes cause an error to occur in



```
                                                                                    RUN DATE     PAGE  4
                                                                                    07/03/74
   DATA FIELD ERRORS IN INPUT CARDS         (VALUES MUST BE RIGHT JUSTIFIED WITH NO IMBEDDED BLANKS)
INVALID DATA FIELD 44 IN POINT CARD: 250040999001501732525252508752   00                  01     AP4
                                                                       *******
INVALID DATA FIELD 56 IN POINT CARD: 25004099900130173     10                  0                 AP5
                                                            *******
INVALID DATA FIELD 21 IN POINT CARD: 25020099900070173     0070                09500     0       AP3
                                                             ***
INVALID DATA FIELD 31 IN POINT CARD: 25020099900070173     0070                09500     0       AP3
                                                                                 ***
INVALID DATA FIELD 44 IN POINT CARD: 250200999000701732500007510615   20                  01     AP4
                                                                       *******
INVALID DATA FIELD 56 IN POINT CARD: 25020099900070173     50                  0                 AP5
                                                            *******
INVALID DATA FIELD 44 IN POINT CARD: 250200999000702732500007510615   10                  01     AP4
                                                                       *******
INVALID DATA FIELD 56 IN POINT CARD: 25020099900070273     20                  0                 AP5
                                                            *******
INVALID DATA FIELD 44 IN POINT CARD: 250200999000501732525252508552   00                  01     AP4
                                                                       *******
INVALID DATA FIELD 56 IN POINT CARD: 25060099900050173     100                 0                 AP5
                                                            *******
INVALID DATA FIELD 21 IN POINT CARD: 25150079900040173     0210                09990     0       CP3
                                                             ***
INVALID DATA FIELD 31 IN POINT CARD: 25150099900040173     0210                09990     0       CP3
                                                                                 ***
INVALID DATA FIELD 44 IN POINT CARD: 251500999000401732525252508752   00                  01     CP4
                                                                       *******
INVALID DATA FIELD 56 IN POINT CARD: 25150099900040173     10                  0                 CP5
                                                            *******
INVALID DATA FIELD 03 IN POINT CARD: 2517209990021          MISS CHEM CO CAMERON ST CANTON MS 39046 D W ARNOLD   AP1
                                                          **
INVALID DATA FIELD 21 IN POINT CARD: 25230079900040173     0210                09990     0       AP3
                                                             ***
INVALID DATA FIELD 31 IN POINT CARD: 25230099900090173     0210                09990     0       AP3
                                                                                 ***
INVALID DATA FIELD 44 IN POINT CARD: 252300999000901732525252508752   00                  01     AP4
                                                                       *******
INVALID DATA FIELD 56 IN POINT CARD: 25230099900040173     10                  0                 AP5
                                                            *******
INVALID DATA FIELD 44 IN POINT CARD: 25264099900090173                00                  00     AP4
                                                                       *******
INVALID DATA FIELD 56 IN POINT CARD: 25264099900040173     10                  0                 AP5
                                                            *******
INVALID DATA FIELD 74 IN POINT CARD: 44004099900090172101002021555503    21 132   23          82   CP6
                                                                          ***
```

Figure 2.18 Edit/check printout Listing III - data field errors.

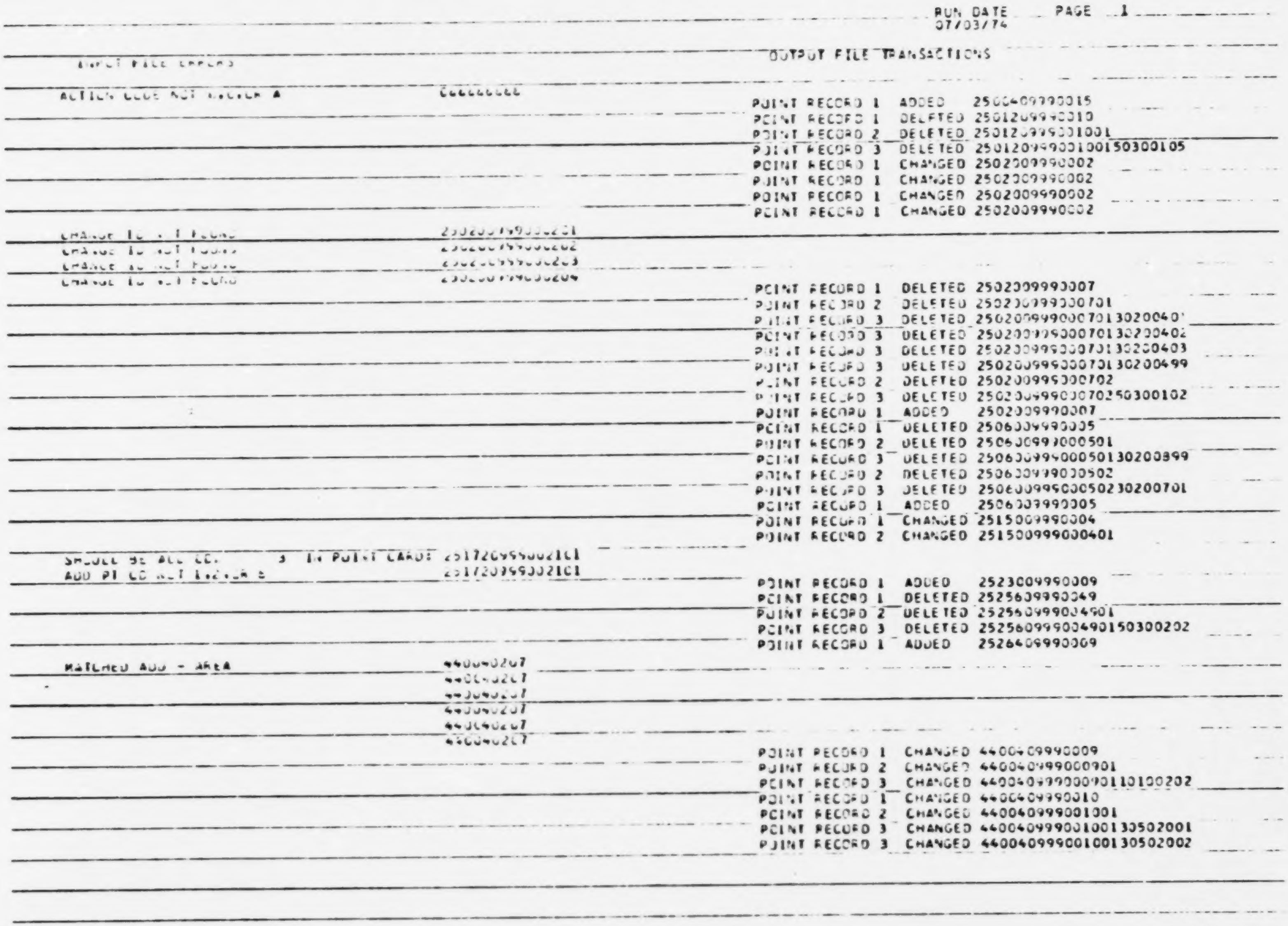
Listing IV. Errors in Listing III must be corrected first, and the corresponding error in Listing IV marked off.

Listing IV, Figure 2.19, is a listing of the actual file transactions and includes the Input File Errors (Rejections) on the left side of the page and the Output File Transactions (Data Updated) on the right side. These Output File Transactions refer to point records 1, 2, and 3 and area records. Point record 1 represents card 1, point record 2 represents cards 2 to 5 or any one or more of these cards, and point record 3 represents card 6. An area record represents all six cards for area sources. The Input File Errors refer to point records, cards, and specific error messages determined by the action code. The identification of each specific transaction is given in the following format:

Column	Point Record	Area Record
1-2	State	State
3-6	County	County
7-9	999	AQCR
10-13	Plant ID	Blank
14-15	Point ID	Blank
16-23	SCC	Blank

The data card requirements and error messages will be listed separately for each action code.

Add. The add action code is used to add a new plant, a new point to an existing plant, or a new SCC to an existing point. To add a new plant, point, or SCC, the specific



```
                                                                            RUN DATE    PAGE  1
                                                                            07/03/74
   INPUT FILE ERRORS                                                 OUTPUT FILE TRANSACTIONS

ACTION CODE NOT A,C,OR D          CCCCCCCCC
                                                                  POINT RECORD 1  ADDED   2500409990015
                                                                  POINT RECORD 1  DELETED 2501209990010
                                                                  POINT RECORD 2  DELETED 250120999001001
                                                                  POINT RECORD 3  DELETED 25012099900100150300105
                                                                  POINT RECORD 1  CHANGED 2502009990002
                                                                  POINT RECORD 1  CHANGED 2502009990002
                                                                  POINT RECORD 1  CHANGED 2502009990002
                                                                  POINT RECORD 1  CHANGED 2502009990002

CHANGE TO NOT FOUND               250200999000201
CHANGE TO NOT FOUND               250200999000202
CHANGE TO NOT FOUND               250200999000203
CHANGE TO NOT FOUND               250200999000204
                                                                  POINT RECORD 1  DELETED 2502009990007
                                                                  POINT RECORD 2  DELETED 250200999000701
                                                                  POINT RECORD 3  DELETED 25020099900070130200401
                                                                  POINT RECORD 3  DELETED 25020099900070130200402
                                                                  POINT RECORD 3  DELETED 25020099900070130200403
                                                                  POINT RECORD 3  DELETED 25020099900070130200499
                                                                  POINT RECORD 2  DELETED 250200999000702
                                                                  POINT RECORD 3  DELETED 25020099900070250300102
                                                                  POINT RECORD 1  ADDED   2502009990007
                                                                  POINT RECORD 1  DELETED 2506009990005
                                                                  POINT RECORD 2  DELETED 250600999000501
                                                                  POINT RECORD 3  DELETED 25060099900050130200399
                                                                  POINT RECORD 2  DELETED 250600999000502
                                                                  POINT RECORD 3  DELETED 25060099900050230200701
                                                                  POINT RECORD 1  ADDED   2506009990005
                                                                  POINT RECORD 1  CHANGED 2515009990004
                                                                  POINT RECORD 2  CHANGED 251500999000401

SHOULD BE ADD CD.     3   IN POINT CARD: 251720999002101
ADD PT CD NOT 1,2,OR 3            251720999002101
                                                                  POINT RECORD 1  ADDED   2523009990009
                                                                  POINT RECORD 1  DELETED 2525609990049
                                                                  POINT RECORD 2  DELETED 252560999004901
                                                                  POINT RECORD 3  DELETED 25256099900490150300202
                                                                  POINT RECORD 1  ADDED   2526409990009

MATCHED ADD - AREA                440040207
                                  440040207
                                  440040207
                                  440040207
                                  440040207
                                  440040207
                                                                  POINT RECORD 1  CHANGED 4400409990009
                                                                  POINT RECORD 2  CHANGED 440040999000901
                                                                  POINT RECORD 3  CHANGED 44004099900090110100202
                                                                  POINT RECORD 1  CHANGED 4400409990010
                                                                  POINT RECORD 2  CHANGED 440040999001001
                                                                  POINT RECORD 3  CHANGED 44004099900100130502001
                                                                  POINT RECORD 3  CHANGED 44004099900100130502002
```

Figure 2.19 Edit/check printout Listing IV - input file errors.

cards must be included to create point records 1, 2, or 3. Point record 1 must be added before point records 2 and 3, and point record 2 must be added before point record 3 is added. If any card for a specific point record is rejected in Listing III, that point record will be rejected, and any other point records requiring it will be rejected (point record 3 is rejected if point record 2 is rejected). See Table 2.2 for error messages.

Listings I, II, and III should be used to correct any errors found in Listing IV. These three listings will indicate that the problem is either a keypunch error or a coding error. The forms should be corrected from the listings and rekeypunched, or if the cards are available, correct the cards from the listing.

Change. Change action code is used to update data currently stored for a plant, point, or SCC. To submit a change only the card containing the update must be submitted. Duplicate change cards for the same card must not be submitted. See Table 2.2 for error messages.

Delete. Delete action code is used to remove an entire plant, specific point, or specific SCC whenever incorrect. To delete an entire plant submit a card 1 delete, to delete a point submit a card 2, and to delete an SCC submit a card 6. See Table 2.2 for error messages.

In making the necessary corrections, it is very helpful to have the card deck. Access to a keypunch machine is also

Table 2.2 Error Messages

ADD ERROR MESSAGES

Error Message	Meaning	Correction
Should be Add Cd X in Area/ Point Card: Card ID	X is the card number that the program is expecting. The program is expecting cards 1-6 for area sources and cards 2-5 for point sources. The message appears if the card X is missing or duplicated.	If area source, correct error and resubmit all six cards. If point source, correct error and resubmit all cards 2-6 for the point.
First Card of Area Add Not 1	First card of an area source is not card 1.	Correct error and resubmit all six area source cards.
Matched Add - Area	The identification of an area source matches an existing area source.	If the data is for the same area source and is updating the data, change the action code to "[illegible]" and resubmit.
Matched Add - Point 1; Matched Add - Point 2; Matched Add - Point 3	The identification of the point record being added matches a record already on the existing file.	Check plant names and identification for new data vs old printout. If the plants or points match, change the action code to "C" and resubmit. If the plant is new, assign a new plant ID as instructed by R.O. and resubmit as adds.
Pt 2 Add With No Pt 1	Point record 2 (cards 2-5) is correct but cannot be added because there is no point record 1.	Correct card 1 and resubmit all the cards for the plant.
Pt 3 With No Pt 2	Point record 3 is correct but cannot be added because there is no point record 2.	Correct cards for point record 2, resubmit all the cards for the point.

Table 2.2 (continued) Error Messages

Error Message	Meaning	Correction
Add Pt Cd not 1, 2, or 6	A new plant, point, or SCC is being added but the first card of the point record is not 1, 2, or 6.	Resubmit all cards necessary to correct the record.
Add Pt 6 follows Cd 1	Cards 2-5 of the point are missing.	Resubmit cards 2-6 for the point.
Dup Cd 1 for Add Point	Duplicate card 1 for the same plant.	If point record 1 was added, check Listing II to see if all card 1's were the same. If they were, ignore the message. If they were different, use a change action code to resubmit the correct information on card 1.

CHANGE ERROR MESSAGES

Error Message	Meaning	Correction
Change ID not found	The corresponding record for the specific ID cannot be found on Master File.	Resubmit all cards for the plant with an action code of "A".
Card number is >6	Card number is greater than 6 for change card for area source.	Resubmit change card with correct card number.
Transaction not complete	Change ID could not be found and was rejected.	Check plant names and identifications and if new plant, resubmit as add.
Invalid SCC in P6 card	The SCC is nonnumeric for a card 6 change.	Correct the SCC and resubmit only card 6.

Table 2.2 (continued) Error Messages

Error Message	Meaning	Correction
Invalid Plant in Pl card or Invalid Pt ID in Pt card	The plant or point ID was non-numeric for change cards.	Correct the plant or point ID's and resubmit the cards with change action codes.

DELETE ERROR MESSAGES

Error Message	Meaning	Correction
Delete not found	Data could not be deleted because has not been stored.	Check the ID to make sure that the correct ID was used. If the correct ID was used, forget. If incorrect ID was used, resubmit correct delete.

MISCELLANEOUS ERROR MESSAGES

Error Message	Meaning	Correction
End of Transaction File. Data errors on next page.	Normal end of Listing IV.	None required.
Action Code Not D, C, or A	Incorrect action code in column 78.	Resubmit data with specific cards submitted determined by correct action code.

useful. If a keypunch machine is not available, remove the incorrect card and enter data for the entire card (as corrected) on an IBM FORTRAN form. As a precaution retain the incorrect cards until all corrections and edit/checks are made.

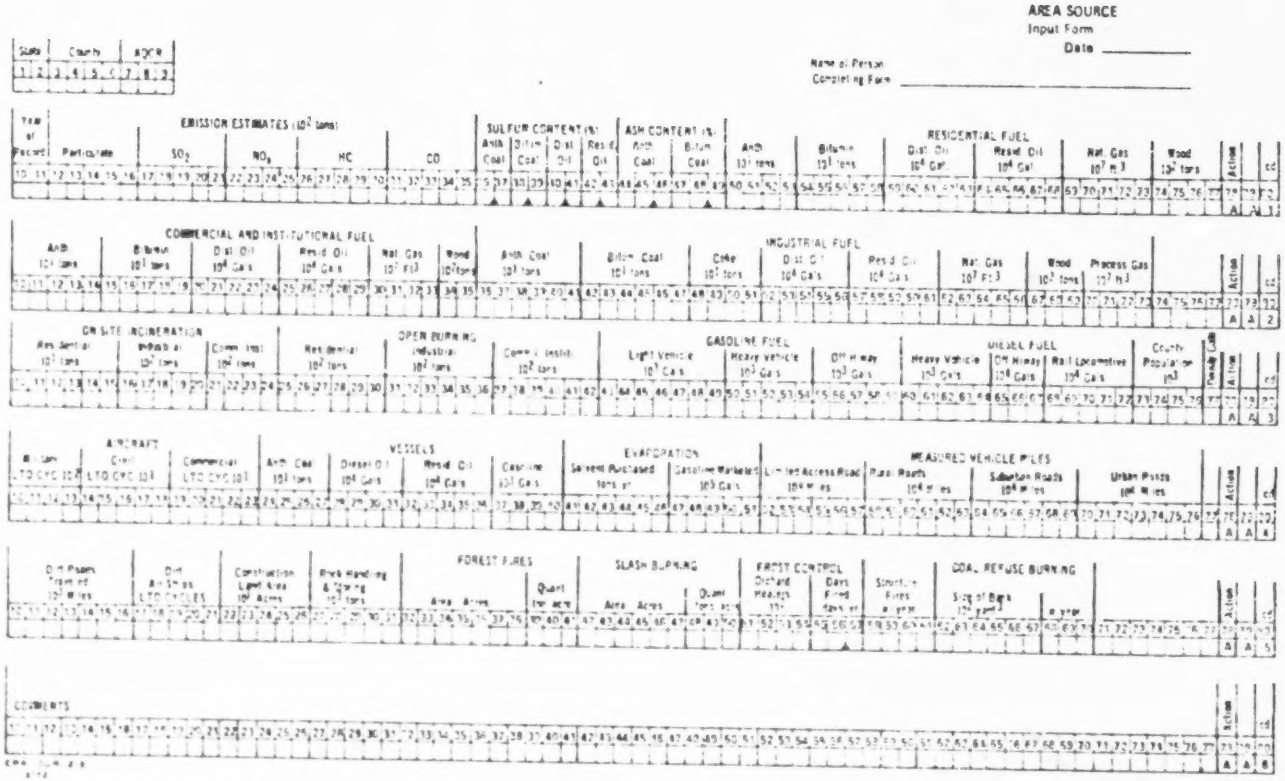
If a keypunch machine is available, remove the incorrect card, correct or re-punch as necessary, and insert in the proper location. After the corrections are made, run the card deck through the edit/check program again to ensure that no errors are present.

The edit/check program is currently being expanded to catch logic errors in addition to mechanical errors. As an example, excessively high values for stack heights signal a possible error. This type of output can be expected in the future, but has not yet been incorporated into the edit/check program.

2.2 AREA SOURCES

Area sources represent a collection of many small sources. Individually, each source may emit only a very small amount, but collectively the impact may be great. Among the major area source categories are fuel combustion (as in residential heating), incineration, vehicular emissions, evaporative emissions, and various other combustion sources such as forest fires or slash burning. The NEDS area source coding form tabulates area source data by county. An area source coding form is shown in Figure 2.20.

At present there are no EPA requirements for state submittal of area source emissions data in the NEDS area



AREA SOURCE
Input Form
Date
Name of Person
Completing Form

Figure 2.20 NEDS area source coding form.

source format. Therefore the National Air Data Branch (NADB) serves as the chief originator and verifier of the data in the NEDS area source data bank. NADB welcomes voluntary submittal by state and local agencies of area source data which is an improvement over the data generated internally. The basic practices and procedures relating to internally generated data and data submittals from outside NADB are described below.

2.2.1 Data Development and Coding

2.2.1.1 NADB-Produced Data - Originally the data incorporated into the NEDS area source data bank was collected according to the procedures outlined in Chapter 5, APTD-1135. This work was accomplished by in-house NADB efforts and NADB contractors and produced data that was representative of the years 1969 to 1971. Subsequently all of this data has been updated through in-house efforts to a common year of record, 1972.

For future maintenance of the area source data base, NADB plans an annual update of the area source data. This update is to be completed by January of each year and will provide data typical of the year previous to the year just ended. For instance, in January 1975, the data base will be updated to reflect calendar year 1973. This time lag is necessitated because publications required to perform the update are not available until late in the year. To simplify the updating procedure the methodology for reporting data is being computerized for a number of area source categories. Computerized methods are for reporting area source, residential, commercial-institutional, and industrial use of coal, oil, natural gas, and LPG, highway use of gasoline and diesel fuel, railroad fuel use, off-highway fuel use, vessels fuel use, and estimation of total gasoline consumption and organic solvent use. Computerized methods for the above categories will be used to make the 1973 area source update. The computerized methods are more detailed than those presently described in APTD-1135.

In addition to the computerization effort, data is now being collected for area source categories where data in NEDS was previously missing or incomplete. This includes forest wildfires, slash and prescribed burning, agricultural burning, unpaved roads and airstrips, agricultural land tilling, and heavy construction sites. New emission factors have been developed for these categories. This data will be incorporated into the data bank at the time of the 1973 update. For the remaining categories, NADB will update the data manually using in-house personnel.

2.2.1.2 Data Submitted by State and Local Agencies - NADB recognizes that in certain cases state and local agencies, through their specific knowledge of local situations, can provide more accurate area source data than that determined by NADB. Therefore, in order to improve the quality of the data base, such data submittals are encouraged. To avoid unnecessary duplication of effort, state and local agencies contemplating such data submittals should be aware of the NADB programs for reporting area source data. It is not worth the effort involved for a state or local agency to prepare area source data that is inferior to or duplicates the data prepared by NADB. It is very helpful, however, for state and local agencies to submit data which will improve upon or supplement the data generated by NADB. It is asked that the following guidelines be followed when submitting area source data:

1. The data must be submitted in the standard NEDS area source format, either on coding forms, punched cards, or card image tape.
2. Appropriate documentation should accompany the data to indicate the source of the data and how the data were derived, if necessary.

There are numerous reasons for requiring documentation to accompany the data. First, NADB must have some criteria to determine whether the data submitted is in fact an improvement over the existing NADB data. Second, NADB must be able to answer questions conerning the data base. If no references are available, NADB can only refer the questioner to the agency that supplied the data. In addition, NADB is interested in identifying new sources of information which may be useful for refinement of the present methods for reporting area source data. The documentation does not need to be extensive. If the data are obtained directly from another reference, simply citing that reference will be sufficient. If the area source data are calculated based on other data, include a sample calculation to show the method for deriving the area source data. It is not necessary to submit extensive sheets of calculations or all the intermediate data used in calculations since determination of the method used to derive the data is the prime consideration.

It is suggested that state or local agencies devote their efforts in the direction of providing data for source categories not covered by the NADB computerized techniques. However, in many cases improvements can be made to the data provided by the computerized techniques by contacting local fuel dealers to determine local fuel consumption or conducting surveys of organic solvent users. However, we anticipate that more improvement in the overall quality of the data could be obtained through local input into such categories as solid waste burning or measurement of vehicle miles. For these categories, NADB does not have the resources to obtain the data for the entire nation on a county basis and must rely on national averages to predict local quantities.

In addition, the area source input form is being redesigned. This change will correct some current data processing problems as well as allow for more flexibility in coding data. The switch to the new format will take place at the time of the 1973 area source update. For data collection efforts during 1974 the existing area source form may continue to be used. However, data submitted after January 1975 must be in the new area source format. Copies of the new area source forms will be available from EPA Regional Offices. The basic changes to the NEDS area source form are as follows:

1. For cards 1 to 4, the only changes will be some rearrangement of the data fields. The field for county population will be deleted.

2. On card 5, the fields for rock handling and storage and coal refuse burning will be deleted. Emissions from these categories should be accounted for as point sources. New fields for coding of land tilling, miscellaneous wind erosion, and agricultural burning will be added.

3. An optional card 7 will be added. If desired, card 7 may be used to input emissions data for any field included on cards 1 to 5 or to add emissions data for an additional source category not shown on cards 1 to 5. This procedure will allow emissions to be hand calculated for a particular source category and inserted into the data bank to override machine calculated emissions. This procedure is desirable, since for many source categories, emissions can be more accurately determined through a series of calculations rather than simple application of an emission factor as performed by the computer.

4. In addition to the redesign of the input format, a number of systems changes will be made to increase the flexibility and accuracy of the NEDS area source data base. The provision will be included for having state-specific or county-specific emission factors rather than one single emission factor for the entire nation as is now the case. This will be particularly useful for categories such as motor vehicles and fugitive dust sources for which local variations in emission factors may be considerable. Finally, a new area source report output format will be designed. This output format will be more readable than the current area source report and will show emissions for individual area source categories as well as total area source emissions for a county.

2.2.2 Updating Area Source Data

Area source information is updated in the same manner as that for point sources by use of delete, change, or add procedures. The area source identifier is the first nine columns. The action code (D, C, or A) is entered in column

78. Column 79 identifies the card as an area source card (enter an A), and column 80 gives the card number.

In deletion of area source information, deleting card 1 deletes all six cards. This is the only delete procedure the computer accepts. That is, an individual card cannot be deleted; data for the entire area source form are deleted by deleting card 1. New information is added with NEDS area source coding forms.

2.2.3 Edit/Check Procedures

The edit/check program is also run on area source cards and is printed out in the same manner as the program for point sources (see Figures 2.16 to 2.19). The resulting printout lists the errors contained in the card deck, using the error messages listed in Table 2.2. Again, it is helpful to have both the card deck and keypunch machine available when making the corrections.

If a keypunch machine is available, insert the correct or repunched card in the deck to replace the incorrect card. If a keypunch machine is not available, remove the incorrect card and enter the correct data on an IBM FORTRAN coding form.

2.3 NEDS OUTPUT FORMATS

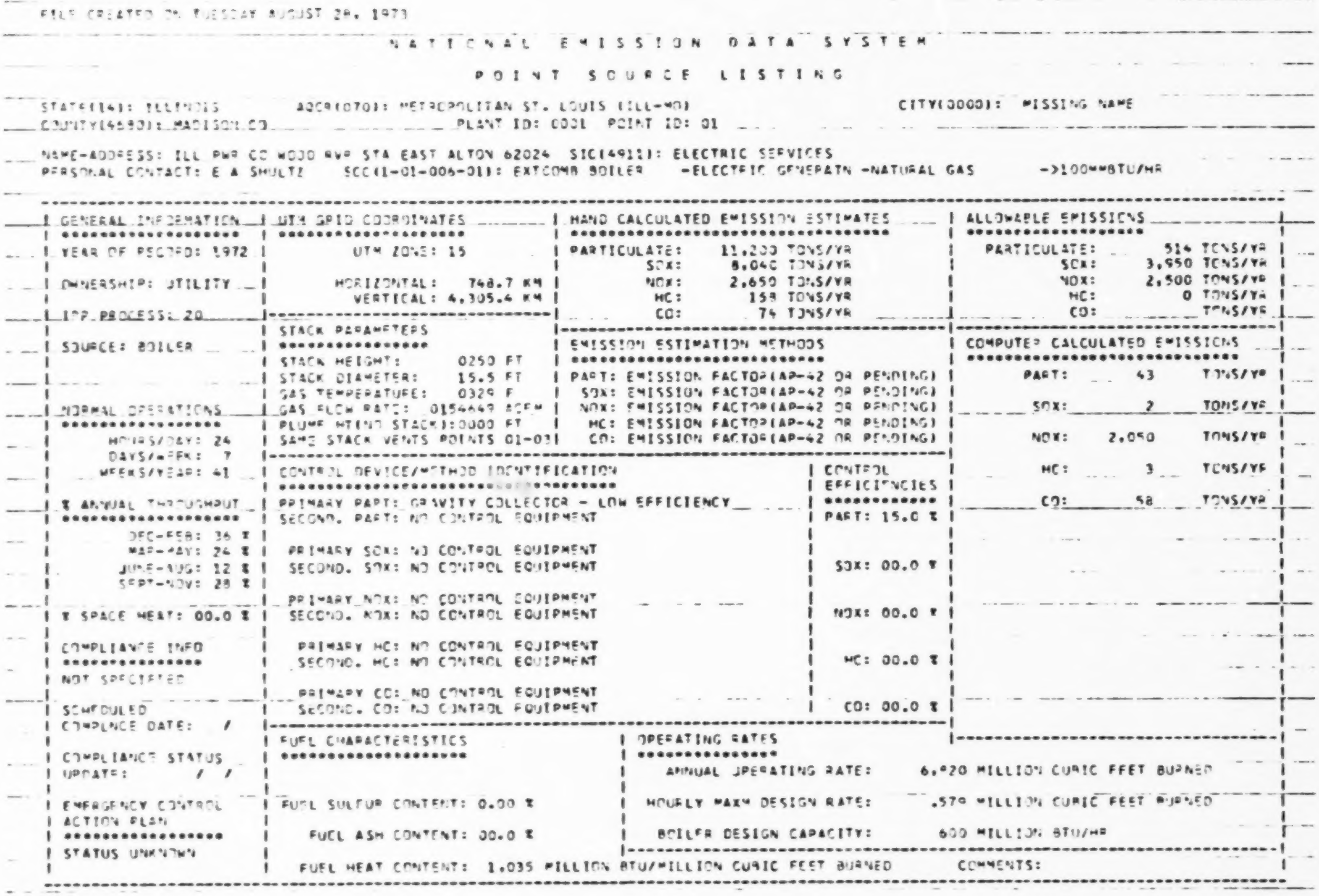
A number of output formats are available in NEDS. Following is a list of these formats with numbers of the figures that exemplify the formats.

Point source listing	Figure 2.21
Area source listing	Figure 2.22
Area source fuel usage	Figures 2.23, 2.24, and 2.25
Count of plants, points, and SCC's	Figure 2.26
Condensed point source listing	Figure 2.27
Allowed vs computed emissions	Figure 2.28
Emission summary	Figure 2.29
Stationary source fuel summary	Figure 2.30
SCC emissions report	Figure 2.31
Highest plant ID by county	Figure 2.32
Weighted sensitivity analysis	Figures 2.33 and 2.34
Plant emissions summary	Figure 2.35

Other available output formats include: missing data items, gridding capability, input to models, and data tape. A brief description of the output formats and selection options follow:

1. Point Source Listing (Figure 2.21) - By far most voluminous of all NEDS reports, this listing provides a page for each SCC of each emission point, showing all NEDS information as it appears on the latest NEDS coding sheet. If a plant has three emission points, each point having two SCC codes, there will be six pages of computer printout for the plant. The volume of output may be greatly reduced by various select options built into this program. The report selects all emission points in one of the following categories:

    State
    State/County
    State/County/Plant
    State/County/Plant/Point
    SCC (any part I; I + II; I, II, + III)
    Ownership Code
    SIC
    Emission Estimate Method
    Any combination of the above



```
FILE CREATED ON TUESDAY AUGUST 28, 1973
                                    N A T I O N A L   E M I S S I O N   D A T A   S Y S T E M

                                                P O I N T   S O U R C E   L I S T I N G

STATE(14): ILLINOIS          AQCR(070): METROPOLITAN ST. LOUIS (ILL-MO)                          CITY(0000):  MISSING NAME
COUNTY(4490): MADISON CO                          PLANT ID: 0001  POINT ID: 01

NAME-ADDRESS: ILL PWR CO WOOD RVR STA EAST ALTON 62024  SIC(4911): ELECTRIC SERVICES
PERSONAL CONTACT: E A SHULTZ     SCC(1-01-006-01): EXTCOMB BOILER    -ELECTRIC GENERATN -NATURAL GAS        ->100MMBTU/HR

 ---------------------------------------------------------------------------------------------------------------------------------
 | GENERAL INFORMATION  | UTM GRID COORDINATES           | HAND CALCULATED EMISSION ESTIMATES      | ALLOWABLE EMISSIONS              |
 | ******************** | ************************       | ************************************    | ********************             |
 | YEAR OF RECORD: 1972 |          UTM ZONE: 15          | PARTICULATE:     11,200 TONS/YR         |    PARTICULATE:      514 TONS/YR |
 |                      |                                |         SOX:      8,040 TONS/YR         |            SOX:    3,950 TONS/YR |
 | OWNERSHIP: UTILITY   |        HORIZONTAL:   748.7 KM  |         NOX:      2,650 TONS/YR         |            NOX:    2,500 TONS/YR |
 |                      |          VERTICAL: 4,305.4 KM  |          HC:        158 TONS/YR         |             HC:        0 TONS/YR |
 | IPP PROCESS: 20      |--------------------------------|          CO:         74 TONS/YR         |             CO:          TONS/YR |
 |                      | STACK PARAMETERS               |-----------------------------------------|----------------------------------|
 | SOURCE: BOILER       | ****************               | EMISSION ESTIMATION METHODS             | COMPUTER CALCULATED EMISSIONS    |
 |                      | STACK HEIGHT:         0250 FT  | ******************************          | ******************************   |
 |                      | STACK DIAMETER:       15.5 FT  | PART: EMISSION FACTOR(AP-42 OR PENDING) |        PART:      43      TONS/YR |
 |                      | GAS TEMPERATURE:      0329 F   |  SOX: EMISSION FACTOR(AP-42 OR PENDING) |                                  |
 | NORMAL OPERATIONS    | GAS FLOW RATE:  0154449 ACFM   |  NOX: EMISSION FACTOR(AP-42 OR PENDING) |         SOX:       2      TONS/YR |
 | ******************   | PLUME HT(NO STACK):0000 FT     |   HC: EMISSION FACTOR(AP-42 OR PENDING) |                                  |
 |       HOURS/DAY: 24  | SAME STACK VENTS POINTS 01-03  |   CO: EMISSION FACTOR(AP-42 OR PENDING) |         NOX:   2,050      TONS/YR |
 |       DAYS/WEEK:  7  |------------------------------------------------------------------------|                                  |
 |      WEEKS/YEAR: 41  | CONTROL DEVICE/METHOD IDENTIFICATION                   | CONTROL        |          HC:       3      TONS/YR |
 |                      | ****************************************               | EFFICIENCIES   |                                  |
 | % ANNUAL THROUGHPUT  | PRIMARY PART: GRAVITY COLLECTOR - LOW EFFICIENCY       | ************   |          CO:      58      TONS/YR |
 | ******************** | SECOND. PART: NO CONTROL EQUIPMENT                     | PART: 15.0 %   |                                  |
 |        DEC-FEB: 36 % |                                                        |                |                                  |
 |        MAR-MAY: 24 % |  PRIMARY SOX: NO CONTROL EQUIPMENT                     |                |                                  |
 |       JUNE-AUG: 12 % |  SECOND. SOX: NO CONTROL EQUIPMENT                     |  SOX: 00.0 %   |                                  |
 |       SEPT-NOV: 28 % |                                                        |                |                                  |
 |                      |  PRIMARY NOX: NO CONTROL EQUIPMENT                     |                |                                  |
 | % SPACE HEAT: 00.0 % |  SECOND. NOX: NO CONTROL EQUIPMENT                     |  NOX: 00.0 %   |                                  |
 |                      |                                                        |                |                                  |
 | COMPLIANCE INFO      |   PRIMARY HC: NO CONTROL EQUIPMENT                     |                |                                  |
 | ***************      |   SECOND. HC: NO CONTROL EQUIPMENT                     |   HC: 00.0 %   |                                  |
 | NOT SPECIFIED        |                                                        |                |                                  |
 |                      |   PRIMARY CO: NO CONTROL EQUIPMENT                     |                |                                  |
 | SCHEDULED            |   SECOND. CO: NO CONTROL EQUIPMENT                     |   CO: 00.0 %   |                                  |
 | COMPLNCE DATE:   /   |-------------------------------------------------------------------------|                                  |
 |                      | FUEL CHARACTERISTICS                  | OPERATING RATES                 |----------------------------------|
 | COMPLIANCE STATUS    | ********************                  | ***************                                                    |
 | UPDATE:        / /   |                                       |   ANNUAL OPERATING RATE:     6,920 MILLION CUBIC FEET BURNED       |
 |                      |                                       |                                                                    |
 | EMERGENCY CONTROL    | FUEL SULFUR CONTENT: 0.00 %           |  HOURLY MAXM DESIGN RATE:     .579 MILLION CUBIC FEET BURNED       |
 | ACTION PLAN          |                                       |                                                                    |
 | *****************    |   FUEL ASH CONTENT: 00.0 %            |   BOILER DESIGN CAPACITY:     600 MILLION BTU/HR                   |
 | STATUS UNKNOWN       |                                       |--------------------------------------------------------------------|
 |                      |   FUEL HEAT CONTENT:  1,035 MILLION BTU/MILLION CUBIC FEET BURNED       COMMENTS:                    |
 ---------------------------------------------------------------------------------------------------------------------------------
```

Figure 2.21 Point source listing.

2. Area Source Report (Figure 2.22) - This option, if selected, will produce for the Region, State, or given County, the format of Figure 2.22. The data presented should be exactly what the latest NEDS form submitted by the respective states for each County indicated. The retrieval keys are as follows:

   State
   State/County

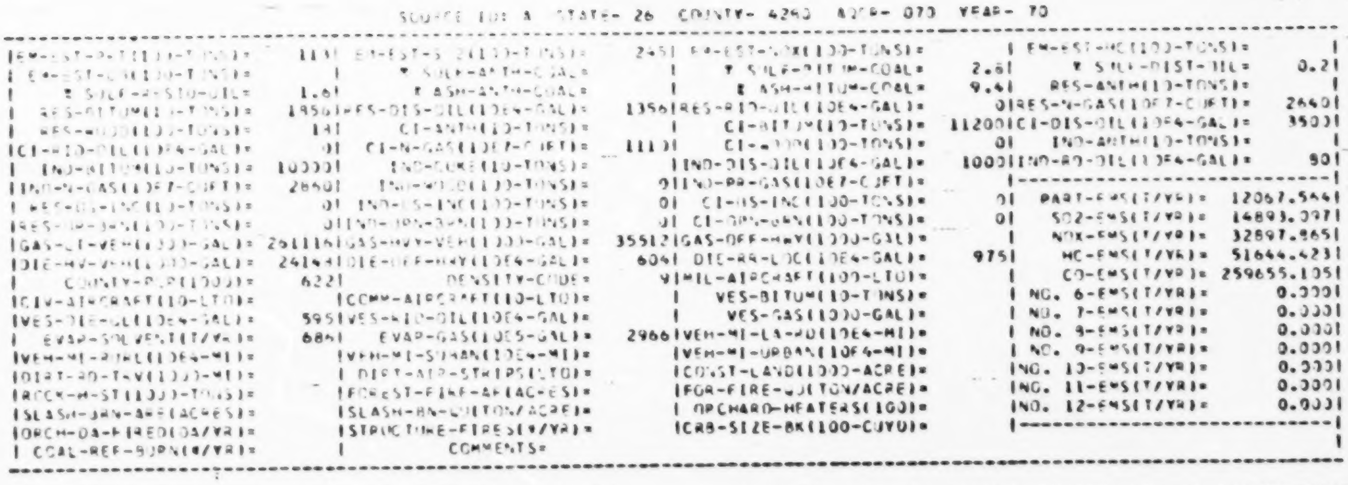
3. Area Source Fuel Usage Summary (Figures 2.23, 2.24, and 2.25) - The select options are Region or State. Figures 2.23, 2.24 and 2.25 show that for each County, total fuel usages are given by fuel category for residential, commercial and institutional, and industrial area sources. The retrieval key is by state.

4. Count of Plants, Points, and SCC's (Figure 2.26) - This output can be used for housekeeping purposes. Only a national printout is possible.

5. Condensed Point Source Listing (Figure 2.27) - For a given State, County, AQCR and SCC sort combination, this program lists a five line summary of emission points emitting above a specified tonnage of pollutant per year. Notice that although the heading criteria is for particulates, all existing pollutant quantities are given. The retrieval keys are the same as for the point source listing.

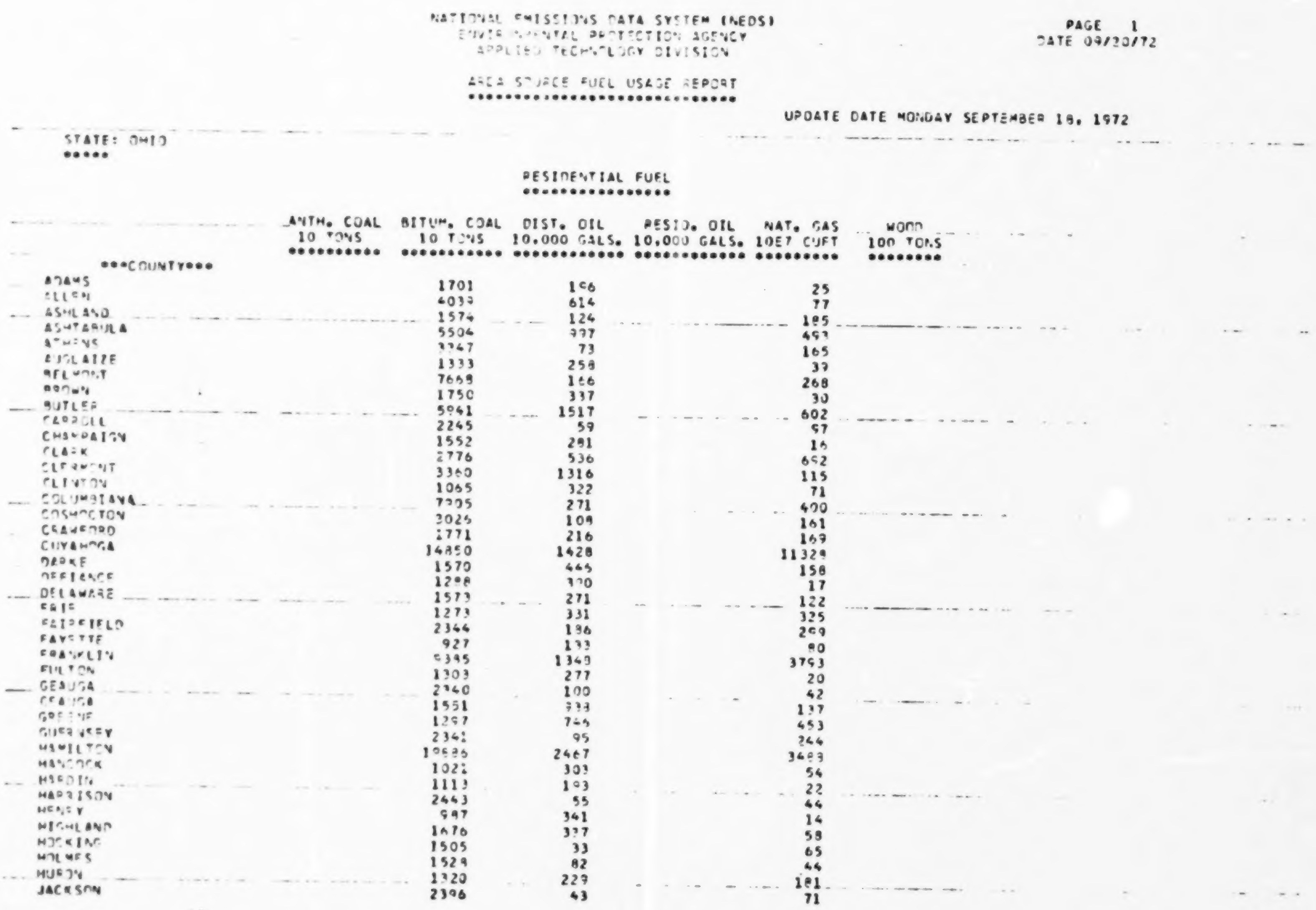
6. Allowed vs Computed Emissions (Figure 2.28) - Output consists of plant/point identification parameters, point within a specified AQCR, and lists the allowable and computer calculated emissions in condensed form. The retrieval keys are as follows:

   State
   State/County
   State/County/Plant
   State/County/Plant/Point
   SCC
   Ownership
   SIC
   Estimation Method
   AQCR



```
                          SOURCE ID: A  STATE- 26  COUNTY- 4260  AQCR- 070  YEAR- 70
-------------------------------------------------------------------------------------------------------------------
|EM-EST-PART(100-TONS)=     113| EM-EST-SO2(100-TONS)=     245| EM-EST-NOX(100-TONS)=        | EM-EST-HC(100-TONS)=        |
| EM-EST-CO(100-TONS)=        |     % SULF-ANTH-COAL=        |    % SULF-BITUM-COAL=    2.6|     % SULF-DIST-OIL=     0.2|
|     % SULF-RESID-OIL=    1.6|      % ASH-ANTH-COAL=        |     % ASH-BITUM-COAL=    9.4|    RES-ANTH(10-TONS)=        |
|   RES-BITUM(10-TONS)=   1956|RES-DIS-OIL(10E4-GAL)=    1356|RES-RID-OIL(10E4-GAL)=      0|RES-N-GAS(10E7-CUFT)=    2640|
|    RES-WOOD(10-TONS)=     14|      CI-ANTH(10-TONS)=        |     CI-BITUM(10-TONS)=  11200|CI-DIS-OIL(10E4-GAL)=    3500|
|CI-RID-OIL(10E4-GAL)=       0|   CI-N-GAS(10E7-CUFT)=    1110|      CI-WOOD(100-TONS)=      0|    IND-ANTH(10-TONS)=        |
|   IND-BITUM(10-TONS)=  10000|     IND-COKE(10-TONS)=        |IND-DIS-OIL(10E4-GAL)=   1000|IND-RD-OIL(10E4-GAL)=      90|
|IND-N-GAS(10E7-CUFT)=    2660|     IND-WOOD(10-TONS)=       0|IND-PR-GAS(10E7-CUFT)=        |----------------------------|
| RES-OS-INC(10-TONS)=       0| IND-OS-INC(100-TONS)=       0|  CI-OS-INC(100-TONS)=      0|  PART-EMS(T/YR)=  12067.544|
|RES-OPN-BRN(10-TONS)=       0|IND-OPN-BRN(100-TONS)=       0| CI-OPN-BRN(100-TONS)=      0|   SO2-EMS(T/YR)=  14893.097|
|GAS-LT-VEH(1000-GAL)=  261116|GAS-HVY-VEH(1000-GAL)=   35512|GAS-OFF-HWY(1000-GAL)=        |   NOX-EMS(T/YR)=  32897.865|
|DIE-HV-VEH(1000-GAL)=   24144|DIE-OFF-HWY(10E4-GAL)=     604| DIE-RR-LOC(10E4-GAL)=    975|    HC-EMS(T/YR)=  51644.423|
|     COUNTY-POP(1000)=    622|          DENSITY-CODE=       9|MIL-AIRCRAFT(100-LTO)=        |    CO-EMS(T/YR)= 259655.105|
|CIV-AIRCRAFT(10-LTO)=        |COMM-AIRCRAFT(10-LTO)=        |   VES-BITUM(10-TONS)=        | NO. 6-EMS(T/YR)=      0.000|
|VES-DIE-OL(10E4-GAL)=     595|VES-RID-OIL(10E4-GAL)=        |    VES-GAS(1000-GAL)=        | NO. 7-EMS(T/YR)=      0.000|
|   EVAP-SOLVENT(T/YR)=    684|    EVAP-GAS(10E5-GAL)=    2966|VEH-MI-LA-RD(10E4-MI)=        | NO. 8-EMS(T/YR)=      0.000|
|VEH-MI-RURL(10E4-MI)=        |VEH-MI-SUBAN(10E4-MI)=        |VEH-MI-URBAN(10E4-MI)=        | NO. 9-EMS(T/YR)=      0.000|
|DIRT-RD-TRV(1000-MI)=        | DIRT-AIR-STRIPS(LTO)=        |CONST-LAND(1000-ACRE)=        |NO. 10-EMS(T/YR)=      0.000|
|ROCK-H-ST(1000-TONS)=        |FOREST-FIRE-AR(ACRES)=        |FOR-FIRE-WJ(TON/ACRE)=        |NO. 11-EMS(T/YR)=      0.000|
|SLASH-BRN-ARE(ACRES)=        |SLASH-BN-WJ(TON/ACRE)=        | ORCHARD-HEATERS(100)=        |NO. 12-EMS(T/YR)=      0.000|
|ORCH-DA-FIRED(DA/YR)=        |STRUCTURE-FIRES(#/YR)=        |CRB-SIZE-BK(100-CUYD)=        |----------------------------|
| COAL-REF-BURN(#/YR)=        |              COMMENTS=                                                                     |
-------------------------------------------------------------------------------------------------------------------
```

Figure 2.22 Area source listing.



```
                         NATIONAL EMISSIONS DATA SYSTEM (NEDS)                                    PAGE   1
                          ENVIRONMENTAL PROTECTION AGENCY                                    DATE 09/20/72
                           APPLIED TECHNOLOGY DIVISION

                          AREA SOURCE FUEL USAGE REPORT
                          *****************************
                                                           UPDATE DATE MONDAY SEPTEMBER 18, 1972
  STATE: OHIO
  *****

                                   RESIDENTIAL FUEL
                                   ****************

                 ANTH. COAL  BITUM. COAL  DIST. OIL    RESID. OIL   NAT. GAS     WOOD
                  10 TONS     10 TONS   10,000 GALS. 10,000 GALS. 10E7 CUFT   100 TONS
                 **********  ********** ************ ************ *********   ********
    ***COUNTY***
  ADAMS                         1701        196                        25
  ALLEN                         4039        614                        77
  ASHLAND                       1574        124                       185
  ASHTABULA                     5504        997                       493
  ATHENS                        3347         73                       165
  AUGLAIZE                      1333        258                        39
  BELMONT                       7669        166                       268
  BROWN                         1750        337                        30
  BUTLER                        5941       1517                       602
  CARROLL                       2245         59                        97
  CHAMPAIGN                     1552        281                        16
  CLARK                         2776        536                       692
  CLERMONT                      3360       1316                       115
  CLINTON                       1065        322                        71
  COLUMBIANA                    7205        271                       400
  COSHOCTON                     3026        109                       161
  CRAWFORD                      1771        216                       169
  CUYAHOGA                     14850       1428                     11329
  DARKE                         1570        445                       158
  DEFIANCE                      1298        370                        17
  DELAWARE                      1573        271                       122
  ERIE                          1273        331                       325
  FAIRFIELD                     2344        196                       289
  FAYETTE                        927        133                        80
  FRANKLIN                      9345       1349                      3793
  FULTON                        1303        277                        20
  GALLIA                        2340        100                        42
  GEAUGA                        1551        733                       137
  GREENE                        1297        746                       453
  GUERNSEY                      2341         95                       244
  HAMILTON                     19686       2467                      3483
  HANCOCK                       1021        303                        54
  HARDIN                        1113        193                        22
  HARRISON                      2443         55                        44
  HENRY                          987        341                        14
  HIGHLAND                      1676        337                        58
  HOCKING                       1505         33                        65
  HOLMES                        1529         82                        44
  HURON                         1320        229                       181
  JACKSON                       2396         43                        71
```

Figure 2.23 Area source fuel usage - residential.

```
                          NATIONAL EMISSIONS DATA SYSTEM (NEDS)                                  PAGE    4
                          ENVIRONMENTAL PROTECTION AGENCY                                        DATE 09/20/72
                           APPLIED TECHNOLOGY DIVISION

                            AREA SOURCE FUEL USAGE REPORT
                            *****************************
                                                                   UPDATE DATE MONDAY SEPTEMBER 19, 1972

  STATE: OHIO
  *****

                            COMMERCIAL AND INSTITUTIONAL
                            ****************************

                   ANTH. COAL  BITUM. COAL  DIST. OIL    RESID. OIL   NAT. GAS     WOOD
                    10 TONS     10 TONS    10.000 GALS. 10.000 GALS. 10E7 CUFT   100 TONS
                   **********  ***********  ***********  ***********  *********   ********
     ***COUNTY***
  ADAMS                            157          63           1           17
  ALLEN                            990         403           3          168
  ASHLAND                          318         127           1           66
  ASHTAPULA                        612         244           2           83
  ATHENS                           348         139           1           70
  AUGLAIZE                         351         139           1           58
  BELMONT                          532         213           2           88
  BROWN                            167          67           1           18
  BUTLER                          1323         526           4
  CARROLL                          123          49                       35
  CHAMPAIGN                        227          90           1           38
  CLARK                            811         324           3          223
  CLERMONT                         500         200           2          136
  CLINTON                          270         108           1           35
  COLUMBIANA                       725         290           2          120
  COSHOCTON                        275         110           1           78
  CRAWFORD                         401         160           1           82
  CUYAHOGA                       13351        5330          42         4132
  DARKE                            363         145           1          100
  DEFIANCE                         315         125           1           52
  DELAWARE                         634         253           2          176
  ERIE                             507         203           2          121
  FAIRFIELD                        388         155           1          108
  FAYETTE                          181          72           1           24
  FRANKLIN                        4833        1756          16         1362
  FULTON                           310         123           1           51
  GEAUGA                           174          70           1           19
  GEAUGA                            23           9                        7
  GREENE                           502         200           2          138
  GUERNSEY                         280         112           1           80
  HAMILTON                        7539        3010          24         2046
  HANCOCK                          475         188           2           78
  HARDIN                           253         100           1           42
  HARRISON                         143          57           1           41
  HENRY                            232          92           1           38
  HIGHLAND                         221          88           1           29
  HOCKING                          132          53                       17
  HOLMES                           136          54                       28
  HURON                            401         160           1           96
  JACKSON                          214          86           1           29
```

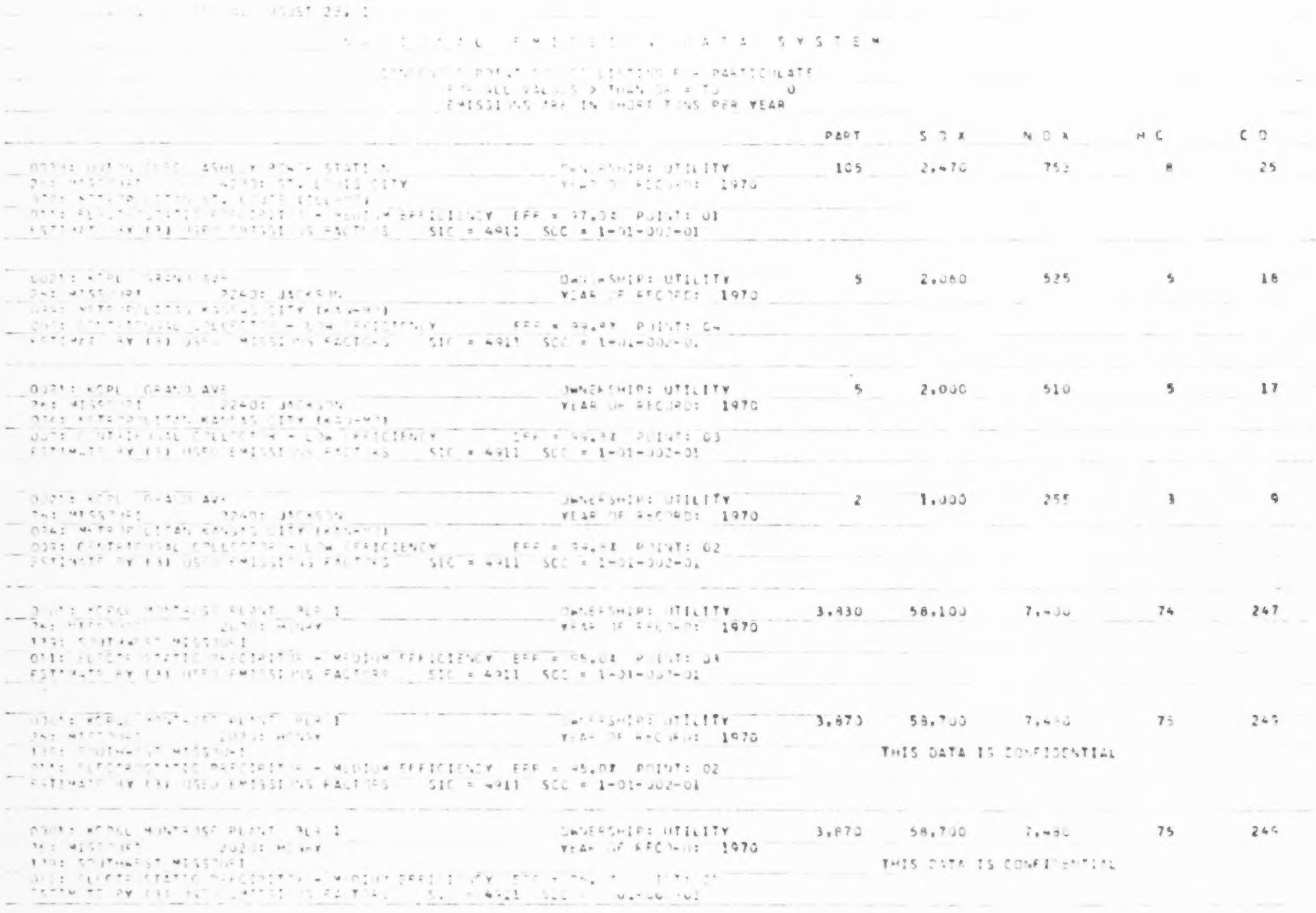
Figure 2.24 Area source fuel usage - commercial and institutional.

```
                                   NATIONAL EMISSIONS DATA SYSTEM (NEDS)                                    PAGE   7
                                     ENVIRONMENTAL PROTECTION AGENCY                                     DATE 09/20/72
                                      APPLIED TECHNOLOGY DIVISION

                                      AREA SOURCE FUEL USAGE REPORT
                                      *****************************
                                                                          UPDATE DATE MONDAY SEPTEMBER 18, 1972
     STATE: OHIO
     *****
                                            INDUSTRIAL FUEL
                                            ***************

                         ANTH. COAL  BITUM. COAL  DIST. OIL    RESID. OIL   NAT. GAS      WOOD     COKE    PROCESS GAS
                          10 TONS     10 TONS   10,000 GALS. 10,000 GALS. 10E7 CUFT   100 TONS  10 TONS   10E7 CUFT
                         **********  ***********  ***********  ***********  *********   ********  *******  ***********
        ***COUNTY***
   ADAMS                                1250            4            2
   ALLEN                               11070           44           19
   ASHLAND                              6156           23           10
   ASHTABULA                           19224           72           31
   ATHENS                               2051            8            3          46
   AUGLAIZE                             4815           19            8
   BELMONT                              5454           20            9         199
   BROWN                                1303            5            2
   BUTLER                              17992           68           29         391
   CARROLL                              1503            6            2         106
   CHAMPAIGN                            3366           13            6
   CLARK                               21613           81           35         584
   CLERMONT                             4905           18            8         104
   CLINTON                              2817           11            5          27
   COLUMBIANA                          14599           55           24         530
   COSHOCTON                            4050           15            7         286
   CRAWFORD                             8865           33           14
   CUYAHOGA                           257167         1115          482
   DARKE                                6921           26           11         187
   DEFIANCE                             3285           12            5
   DELAWARE                             4518           17            7
   ERIE                                 5234           35           15         236
   FAIRFIELD                            7065           27           11
   FAYETTE                              2142            8            4          21
   FRANKLIN                            74089          278          120
   FULTON                               6385           26           11
   GEAUGA                               1247            5            2
   GEAUGA                               6174           23           10
   GREENE                               7989           30           13         216
   GUERNSEY                             4465           13            6         244
   HAMILTON                           145107          544          235        3076
   HANCOCK                              5814           22            9
   HARDIN                               3438           13            6
   HARRISON                             1305            5            2          92
   HENRY                                4509           17            3
   HIGHLAND                             2745           10            4          27
   HOCKING                              2343            9            4          23
   HOLMES                               3924           15            6
   HURON                                6903           26           11         177
   JACKSON                              3213           12            5          31
```

Figure 2.25 Area source fuel usage - industrial.

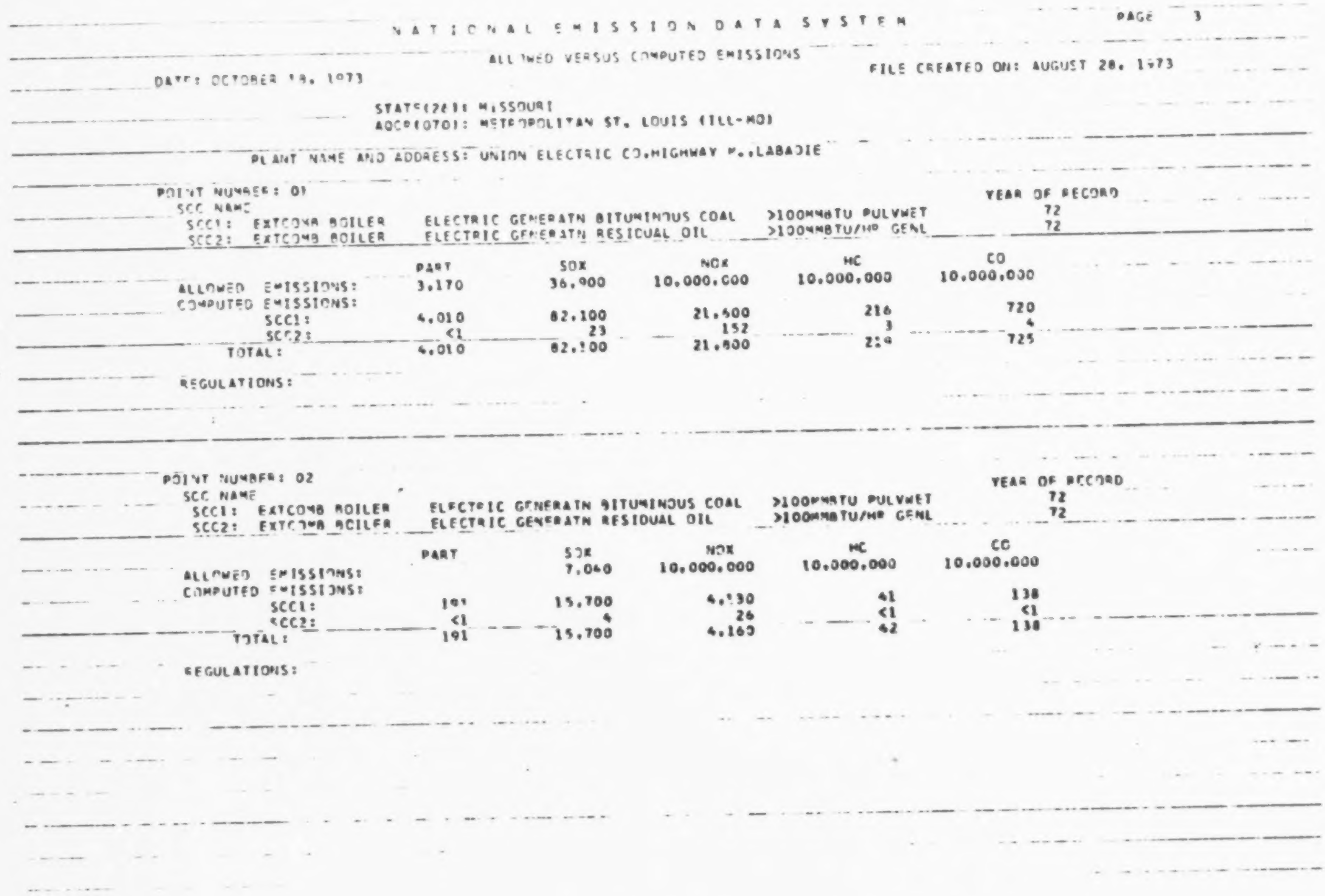
```
                              NATIONAL EMISSIONS DATA SYSTEM                          PAGE: 1

ST  STATE                TOTAL NUMBER       TOTAL NUMBER        TOTAL NUMBER
NO                          PLANTS          PLANT-POINTS     PLANT-POINT-SCC'S
---------------------------------------------------------------------------------------------
01  ALABAMA                   317                556                 723
02  ALASKA                     53                101                 102
03  ARIZONA                   171                247                 627
04  ARKANSAS                  238                694                 819
05  CALIFORNIA              1,069              1,933               2,361
06  COLORADO                  106                253                 332
07  CONNECTICUT               152                477                 516
08  DELAWARE                   41                197                 261
09  DIST COLUMBIA              44                108                 121
10  FLORIDA                    75                205                 258
11  GEORGIA                   449              1,015               1,694
12  HAWAII                    116                476                 696
13  IDAHO                     197                351                 509
14  ILLINOIS                  677              2,692               3,439
15  INDIANA                   535              1,616               1,925
17  KANSAS                    230                346                 408
18  KENTUCKY                  435              1,361               1,794
19  LOUISIANA                 208                426                 453
20  MAINE                     224                382                 410
21  MARYLAND                  221              1,559               2,077
22  MASSACHUSETTS             659              1,048               1,169
23  MICHIGAN                  451              1,124               1,432
24  MINNESOTA                 505                716               1,213
26  MISSOURI                  262                511                 735
27  MONTANA                   114                342                 347
28  NEBRASKA                  120                210                 336
29  NEVADA                     74                221                 248
30  NEW HAMPSHIRE             224                297                 317
31  NEW JERSEY                334              1,469               1,769
32  NEW MEXICO                102                294                 315
34  NORTH CAROLINA          1,312              3,060               4,010
35  NORTH DAKOTA              113                181                 239
36  OHIO                    1,336              3,242               4,141
37  OKLAHOMA                  153                472                 522
38  OREGON                    364              1,463               1,471
39  PENNSYLVANIA              687              2,510               2,650
40  PUERTO RICO               240                343                 366
41  RHODE ISLAND               95                164                 185
42  SOUTH CAROLINA            246                747               1,390
43  SOUTH DAKOTA               76                114                 131
44  TENNESSEE                 474              2,330               2,954
45  TEXAS                     496              4,027               4,548
46  UTAH                       48                102                 105
47  VERMONT                   119                146                 192
48  VIRGINIA                  310                846               1,218
49  WASHINGTON                233                914               1,173
50  WEST VIRGINIA             192                546                 622
51  WISCONSIN                 281                897               1,193
52  WYOMING                    69                199                 263
54  GUAM                       12                 12                  12
55  VIRGIN ISLANDS             16                 85                 120
```

Figure 2.26 Count of plants, points, and SCC's.



```
[illegible] AUGUST 29, [illegible]

                                   N A T I O N A L   E M I S S I O N S   D A T A   S Y S T E M

                                        CONDENSED POINT SOURCE LISTING FOR - PARTICULATE
                                             FOR ALL VALUES > THAN OR = TO        0
                                             EMISSIONS ARE IN SHORT TONS PER YEAR

                                                                           PART      S O X      N O X       H C       C O

0034: UNION ELEC. ASHLEY POWER STATION             OWNERSHIP: UTILITY       105      2,470        753         8        25
246: MISSOURI          4080: ST. LOUIS CITY        YEAR OF RECORD: 1970
070: METROPOLITAN ST. LOUIS (ILL-MO)
010: ELECTROSTATIC PRECIPITATOR - MEDIUM EFFICIENCY  EFF = 97.0%  POINT: 01
ESTIMATED BY (3) USED EMISSIONS FACTORS    SIC = 4911  SCC = 1-01-002-01

0027: KCPL  GRAND AVE                              OWNERSHIP: UTILITY         5      2,060        525         5        18
246: MISSOURI          2240: JACKSON               YEAR OF RECORD: 1970
094: METROPOLITAN KANSAS CITY (KAN-MO)
023: CENTRIFUGAL COLLECTOR - LOW EFFICIENCY        EFF = [illegible]  POINT: 04
ESTIMATED BY (3) USED EMISSIONS FACTORS    SIC = 4911  SCC = 1-01-002-01

0027: KCPL  GRAND AVE                              OWNERSHIP: UTILITY         5      2,000        510         5        17
246: MISSOURI          2240: JACKSON               YEAR OF RECORD: 1970
094: METROPOLITAN KANSAS CITY (KAN-MO)
023: CENTRIFUGAL COLLECTOR - LOW EFFICIENCY        EFF = [illegible]  POINT: 03
ESTIMATED BY (3) USED EMISSIONS FACTORS    SIC = 4911  SCC = 1-01-002-01

0027: KCPL  GRAND AVE                              OWNERSHIP: UTILITY         2      1,000        255         3         9
246: MISSOURI          2240: JACKSON               YEAR OF RECORD: 1970
094: METROPOLITAN KANSAS CITY (KAN-MO)
023: CENTRIFUGAL COLLECTOR - LOW EFFICIENCY        EFF = [illegible]  POINT: 02
ESTIMATED BY (3) USED EMISSIONS FACTORS    SIC = 4911  SCC = 1-01-002-01

0003: KCP&L MONTROSE PLANT  REP 1                  OWNERSHIP: UTILITY     3,830     58,100      7,430        74       247
246: MISSOURI          2020: HENRY                 YEAR OF RECORD: 1970
139: SOUTHWEST MISSOURI
011: ELECTROSTATIC PRECIPITATOR - MEDIUM EFFICIENCY  EFF = [illegible]  POINT: 03
ESTIMATED BY (3) USED EMISSIONS FACTORS    SIC = 4911  SCC = 1-01-002-01

0003: KCP&L MONTROSE PLANT  REP 1                  OWNERSHIP: UTILITY     3,870     58,700      7,490        75       249
246: MISSOURI          2020: HENRY                 YEAR OF RECORD: 1970
139: SOUTHWEST MISSOURI                                                        THIS DATA IS CONFIDENTIAL
011: ELECTROSTATIC PRECIPITATOR - MEDIUM EFFICIENCY  EFF = 95.0%  POINT: 02
ESTIMATED BY (3) USED EMISSIONS FACTORS    SIC = 4911  SCC = 1-01-002-01

0003: KCP&L MONTROSE PLANT  REP 1                  OWNERSHIP: UTILITY     3,870     58,700      7,490        75       249
246: MISSOURI          2020: HENRY                 YEAR OF RECORD: 1970
139: SOUTHWEST MISSOURI                                                        THIS DATA IS CONFIDENTIAL
011: ELECTROSTATIC PRECIPITATOR - MEDIUM EFFICIENCY  [illegible]
ESTIMATED BY (3) USED EMISSIONS FACTORS    SIC = 4911  SCC = [illegible]
```

Figure 2.27 Condensed point source listing.



```
                        N A T I O N A L   E M I S S I O N   D A T A   S Y S T E M                          PAGE    3
                                      ALLOWED VERSUS COMPUTED EMISSIONS
                                                                                 FILE CREATED ON: AUGUST 28, 1973
  DATE: OCTOBER 18, 1973
                          STATE(26): MISSOURI
                          AQCR(070): METROPOLITAN ST. LOUIS (ILL-MO)

             PLANT NAME AND ADDRESS: UNION ELECTRIC CO.HIGHWAY M.,LABADIE

  POINT NUMBER: 01                                                                          YEAR OF RECORD
    SCC NAME
     SCC1:  EXTCOMB BOILER     ELECTRIC GENERATN BITUMINOUS COAL   >100MMBTU PULVWET               72
     SCC2:  EXTCOMB BOILER     ELECTRIC GENERATN RESIDUAL OIL      >100MMBTU/HP GENL               72

                                PART         SOX          NOX           HC           CO
   ALLOWED  EMISSIONS:          3,170       36,900    10,000,000    10,000,000   10,000,000
   COMPUTED EMISSIONS:
              SCC1:             4,010       82,100        21,600          216          720
              SCC2:               <1           23            152            3            4
         TOTAL:                 4,010       82,100        21,800          219          725

   REGULATIONS:


  POINT NUMBER: 02                                                                          YEAR OF RECORD
    SCC NAME
     SCC1:  EXTCOMB BOILER     ELECTRIC GENERATN BITUMINOUS COAL   >100MMBTU PULVWET               72
     SCC2:  EXTCOMB BOILER     ELECTRIC GENERATN RESIDUAL OIL      >100MMBTU/HP GENL               72

                                PART         SOX          NOX           HC           CO
   ALLOWED  EMISSIONS:                      7,040    10,000,000    10,000,000   10,000,000
   COMPUTED EMISSIONS:
              SCC1:               191       15,700         4,130           41          138
              SCC2:                <1            4            26           <1           <1
         TOTAL:                   191       15,700         4,160           42          138

   REGULATIONS:
```

Figure 2.28 Allowed vs computed emissions.

7. Emissions Summary Report (Figure 2.29) - This report illustrates the CFR Appendix D type format of emissions accounted for in NEDS throughout the entire U.S. Point and area sources are included in this report. The retrieval keys are as follows:

   Nation
   State
   EPA Region
   State
   State/County
   AQCR
   State portions of interstate AQCR's

8. Stationary Source Fuel Summary (Figure 2.30) - Similar to the Area Source Fuel Summary, this format identifies fuel usages for stationary point sources. This report may be obtained on a County-by-County basis. However, arrangements have been made to also provide entire State or AQCR outputs (by County) through the control card mechanism built into this program. The retrieval keys are as follows:

   Nation
   State
   AQCR
   County

9. SCC Emissions Report (Figure 2.31) - Total emissions in tons/year of SIP pollutants by county number and SCC category are summarized in this format. Also given is the number of sources available per SCC for each county. This report is available by State.

10. Highest Plant ID by County (Figure 2.32) - This report provides a means of checking the highest plant ID in each county which exists in NEDS at any time. The Highest Plant Number by County report is to aid state and local agencies in selection of plant sources not presently in the system by state and local agencies. This output is run on a national basis only.

11. Weighted Sensitivity Programs (Figures 2.33 and 2.34) - The two outputs differ only in the "source class" breakdown. Giving total numbers of sources for a State, the first option lists total emissions, possible percent error, and total error in tons per year for area sources and point sources for SIP pollutants. The second option presents the same data for fuel combustion, industrial

```
                                        NATIONAL EMISSIONS DATA SYSTEM
                                        ******************************

                                       ENVIRONMENTAL PROTECTION AGENCY
                                       *******************************

      NATIONWIDE EMISSIONS REPORT                                           RUN DATE: SEPTEMBER 6, 1973
      ***************************                                      EMISSIONS AS OF: AUGUST 24, 1973
        UNITED STATES

                                      PARTICULATES        SOX             NOX              HC               CO
                                     **************  **************  **************  **************  **************
                                       TONS / YR       TONS / YR       TONS / YR       TONS / YR       TONS / YR

 FUEL COMBUSTION
 ***************

    EXTERNAL COMBUSTION

       RESIDENTIAL FUEL (AREA)

          ANTHRACITE COAL                 12344           32313            3703            3046          111094
          BITUMINOUS COAL                 79482          387695           11459           79082          355781
          DISTILLATE OIL                  74579          392335           87474           21444           36439
          RESIDUAL OIL                      295            2417             513              38               3
          NATURAL GAS                     47427            1511          120125           20140           50450
          WOOD                            52377            1044           24451            4190            4190
          TOTAL (RESIDENTIAL)            264465          727232          254506          128421          557457

       ELEC GENERATION (POINT)

          ANTHRACITE COAL                 14246           47638           12431             142            3417
          BITUMINOUS COAL               3242458        15464214         3404051           52722          164408
          LIGNITE                         37740           75152           78144             239         5995304
          RESIDUAL OIL                    27477         1154283          523572           10541           15740
          DISTILLATE OIL                   4713           12544           22265             512             614
          NATURAL GAS                     24471            5874          924167            1847           27036
          PROCESS GAS                       447           13442           27571             144          394726
          COKE                              427           71343            5941              10             333
          SOLID WASTE/COAL                  751               0             302              63             295
          OTHER                            2527            2040               0               0               0
          TOTAL (ELEC GEN)              3354424        15456647         6105110           40319         6507477

       INDUSTRIAL FUEL

          ANTHRACITE COAL
               POINT SOURCES              10420           22414            6109              56            1721
          BITUMINOUS COAL
               AREA SOURCES             1354742          493757          175453           11730           23440
               POINT SOURCES            1224542         2274492          524730           16718           53154
          LIGNITE
               POINT SOURCES              14470            6756            4276             233             465
          RESIDUAL OIL
               AREA SOURCES               13155           46799           52423            2931             175
               POINT SOURCES              54002          749148          174544            4570         4394427
          DISTILLATE OIL
```

Figure 2.29 Nationwide, state, or county emission summary.

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7525
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
AREA SOURCES	[illegible]	[illegible]	[illegible]	12	0
POINT SOURCES	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
COKE					
POINT SOURCES	[illegible]	[illegible]	[illegible]	46	507
WOOD					
AREA SOURCES	[illegible]	28	[illegible]	117	117
POINT SOURCES	[illegible]	[illegible]	117117	25112	[illegible]
LIQUID PETR GAS					
POINT SOURCES	167	1321	[illegible]	32	[illegible]
BAGASSE					
POINT SOURCES	[illegible]	0	[illegible]	3413	3413
OTHER					
POINT SOURCES	[illegible]	4779	[illegible]	41	7724
TOTAL (INDUSTRIAL)					
AREA SOURCES	[illegible]	[illegible]	[illegible]	67205	[illegible]
POINT SOURCES	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
COMM-INSTITUTIONAL FUEL					
ANTHRACITE COAL					
AREA SOURCES	[illegible]	[illegible]	221	4	133
POINT SOURCES	[illegible]	1816	[illegible]	21	151
BITUMINOUS COAL					
AREA SOURCES	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
POINT SOURCES	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
LIGNITE					
POINT SOURCES	444	[illegible]	[illegible]	11	29
RESIDUAL OIL					
AREA SOURCES	[illegible]	[illegible]	[illegible]	6715	[illegible]
POINT SOURCES	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
DISTILLATE OIL					
AREA SOURCES	[illegible]	[illegible]	[illegible]	12172	[illegible]
POINT SOURCES	[illegible]	[illegible]	[illegible]	132	[illegible]
NATURAL GAS					
AREA SOURCES	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
POINT SOURCES	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
WOOD					
AREA SOURCES	[illegible]	2	[illegible]	[illegible]	[illegible]
POINT SOURCES	[illegible]	[illegible]	[illegible]	[illegible]	125
LIQUID PETR GAS					
POINT SOURCES	2	1	11	1	2
TOTAL (COMM-INST)					
AREA SOURCES	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
POINT SOURCES	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
OTHER (POINT)	[illegible]	211	[illegible]	0	0
TOTAL (EXTERNAL COMB)					
AREA SOURCES	[illegible]	[illegible]	[illegible]	227722	623111
POINT SOURCES	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
INTERNAL COMBUSTION (POINT)					
ELECTRIC GENERATION					

Figure 2.29 (continued). Nationwide, state, or county emission summary.

```
     DISTILLATE OIL               1314        2610       10448         204         124
     NATURAL GAS                    43           1        4124         144          24
     [illegible]                   319         241        3337         331        2011
     TOTAL (ELECT GEN)             447        2442       14669         595        2159

   INDUSTRIAL FUEL

     DISTILLATE OIL                311         692        2619          51         311
     NATURAL GAS                  1245        7249      828990       27537       10423
     GASOLINE                       19           4         175         514        1302
     DIESEL FUEL                    59         102        1459         161         929
     OTHER                           3           0           7          12          75
     TOTAL (INDUSTRIAL)           1642        8049      833250       28365       13040

   COMM-INSTITUTIONAL

     DIESEL                         47          47        1324         133         808
     OTHER                           6           2          11           9           3
     TOTAL (COMM-INST)              53          49        1339         142         811

   ENGINE-TESTING

     AIRCRAFT                      172          72         347         377         940
     OTHER                         151           0           0           0           0
     TOTAL (ENG TESTING)           323          72         347         377         940

   OTHER (POINT)                     0           0           0         220           0

   TOTAL (INTERNAL COMB)          3445       11032      852984       29788       16950

  TOTAL (FUEL COMBUSTION)

   AREA SOURCES                1952279     2955007     1264356      227722      623111
   POINT SOURCES               5202441    20476597    11264577      190767    12595177

INDUSTRIAL PROCESS (POINT)
**************************

   CHEMICAL MANUFACTURING       194443      490133      115253     2170419     5803420
   FOOD/AGRICULTURAL             23211         406        2440       22334        1433
   PRIMARY METALS              1377450     3544731       14467      112479     2692630
   SECONDARY METALS             142304       96440        1474        3019     1212565
   MINERAL PRODUCTS            4694231      302149       94445       10456      224496
   PETROLEUM INDUSTRY           415849     1576544      399023      751548     7300205
   WOOD PRODUCTS                449445      135177        2073       22777      746489
   EVAPORATION                     448       25445         545     2256145        2116
   METAL FABRICATION              3424        1419         423        1027          39
   LEATHER PRODUCTS                  0           6           0         340           0
   TEXTILE MANUFACTURING           398          40           7        7645           1
   INPROCESS FUEL                27130       29444       17127       14310        5956
   OTHER/NOT CLASSIFIED           4144       10241         546       97755       31335
   TOTAL (INDUSTRIAL)          7547773     6159777      654377     5470616    17613079

SOLID WASTE DISPOSAL
********************

   GOVERNMENT (POINT)

     MUNICIPAL INCINERATION      34749        6432        5162       17499       75076
     OPEN BURNING                23244        1429        2447       43222      122491
     OTHER                         191          19          44         141         544
```

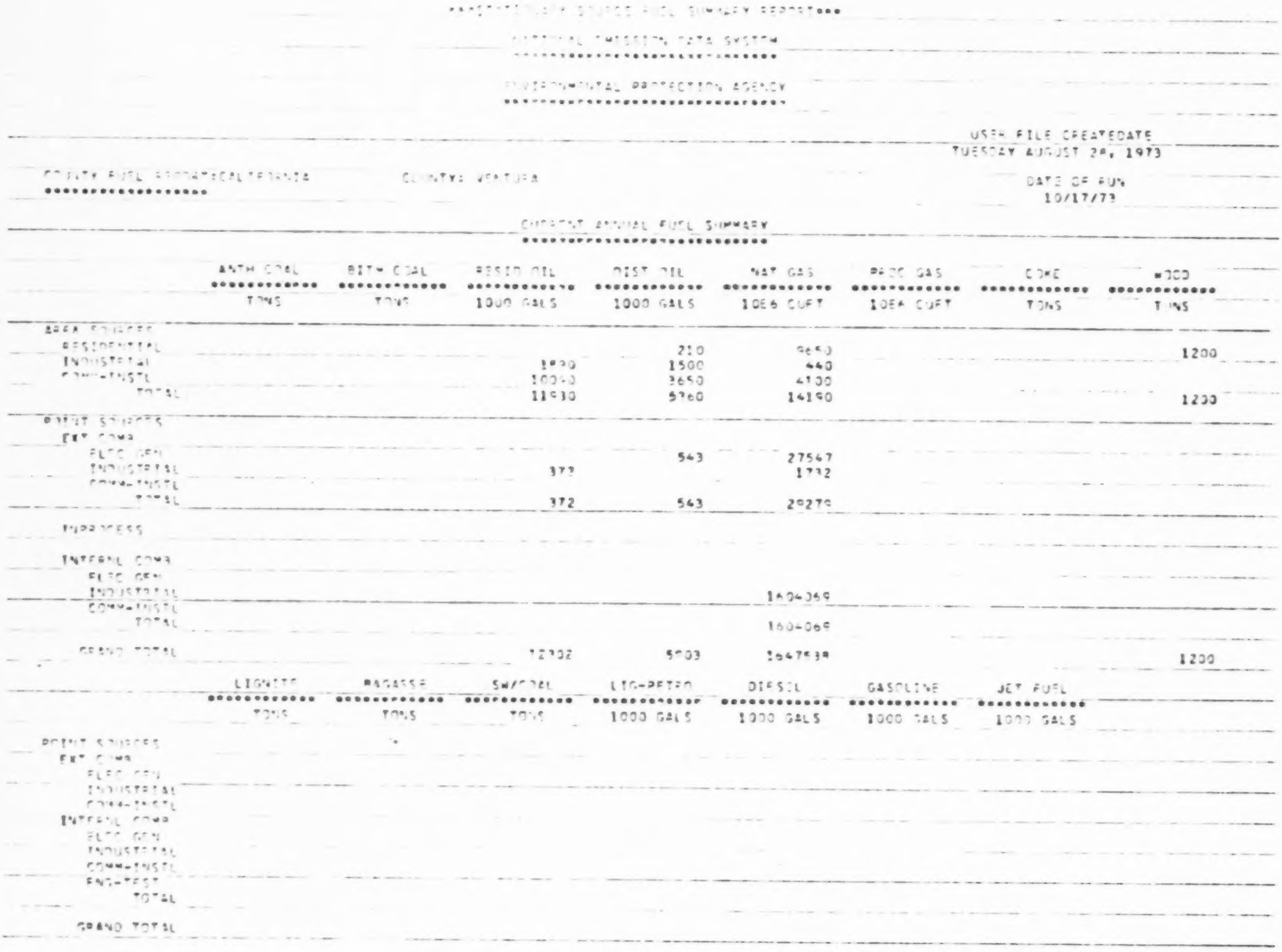
Figure 2.29 (continued). Nationwide, state, or county emission summary.

```
                                        [illegible]      [illegible]      [illegible]      [illegible]      19[illegible]11

[illegible]                             [illegible]      [illegible]      [illegible]      [illegible]      [illegible]
[illegible]                             [illegible]      [illegible]      [illegible]      [illegible]      [illegible]
TOTAL            [illegible]            [illegible]      10172            [illegible]      [illegible]      [illegible]

COMMERCIAL-INSTITUTIONAL
----------------------------------------------------------------------------------------------------------------------
  ON-SITE INCINERATION
      AREA SOURCES                      [illegible]      [illegible]      [illegible]      [illegible]      [illegible]
      POINT SOURCES                     [illegible]      753              [illegible]      1356             [illegible]
  OPEN BURNING
      AREA SOURCES                      [illegible]      [illegible]      [illegible]      [illegible]      [illegible]
      POINT SOURCES                     [illegible]      0                139              274              [illegible]
  APARTMENT
      POINT SOURCES                     [illegible]      19               116              552              [illegible]
  OTHER
      POINT SOURCES                     2                0                1                0                0
  TOTAL (COMM-INST)
      AREA SOURCES                      [illegible]      [illegible]      [illegible]      [illegible]      [illegible]
      POINT SOURCES                     [illegible]      [illegible]      [illegible]      [illegible]      15220

INDUSTRIAL
----------------------------------------------------------------------------------------------------------------------
  ON SITE INCINERATION
      AREA SOURCES                      [illegible]      [illegible]      [illegible]      123230           [illegible]
      POINT SOURCES                     [illegible]      [illegible]      [illegible]      [illegible]      [illegible]
  OPEN BURNING
      AREA SOURCES                      [illegible]      6536             [illegible]      222212           555330
      POINT SOURCES                     [illegible]      [illegible]      [illegible]      [illegible]      [illegible]
  AUTO BODY INCINERATION
      POINT SOURCES                     [illegible]      0                1                3                17
  OTHER
      POINT SOURCES                     [illegible]      [illegible]      6                79               22
  TOTAL (INDUSTRIAL)
      AREA SOURCES                      [illegible]      [illegible]      [illegible]      [illegible]      801991
      POINT SOURCES                     [illegible]      [illegible]      [illegible]      [illegible]      [illegible]

OTHER [illegible]                       7                0                0                0                [illegible]

TOTAL (SOLID WASTE DISP)

      AREA SOURCES                      [illegible]      [illegible]      132713           [illegible]      [illegible]
      POINT SOURCES                     [illegible]      [illegible]      [illegible]      157015           [illegible]

TRANSPORTATION (AREA)
**********************

LAND VEHICLES

  GASOLINE

      LIGHT VEHICLES                    [illegible]      [illegible]      [illegible]      [illegible]      [illegible]
      HEAVY VEHICLES                    [illegible]      [illegible]      [illegible]      [illegible]      [illegible]
      OFF HIGHWAY                       [illegible]      [illegible]      [illegible]      [illegible]      [illegible]
      TOTAL (GASOLINE)                  [illegible]      [illegible]      [illegible]      [illegible]      [illegible]

  DIESEL
```

Figure 2.29 (continued). Nationwide, state, or county emission summary.

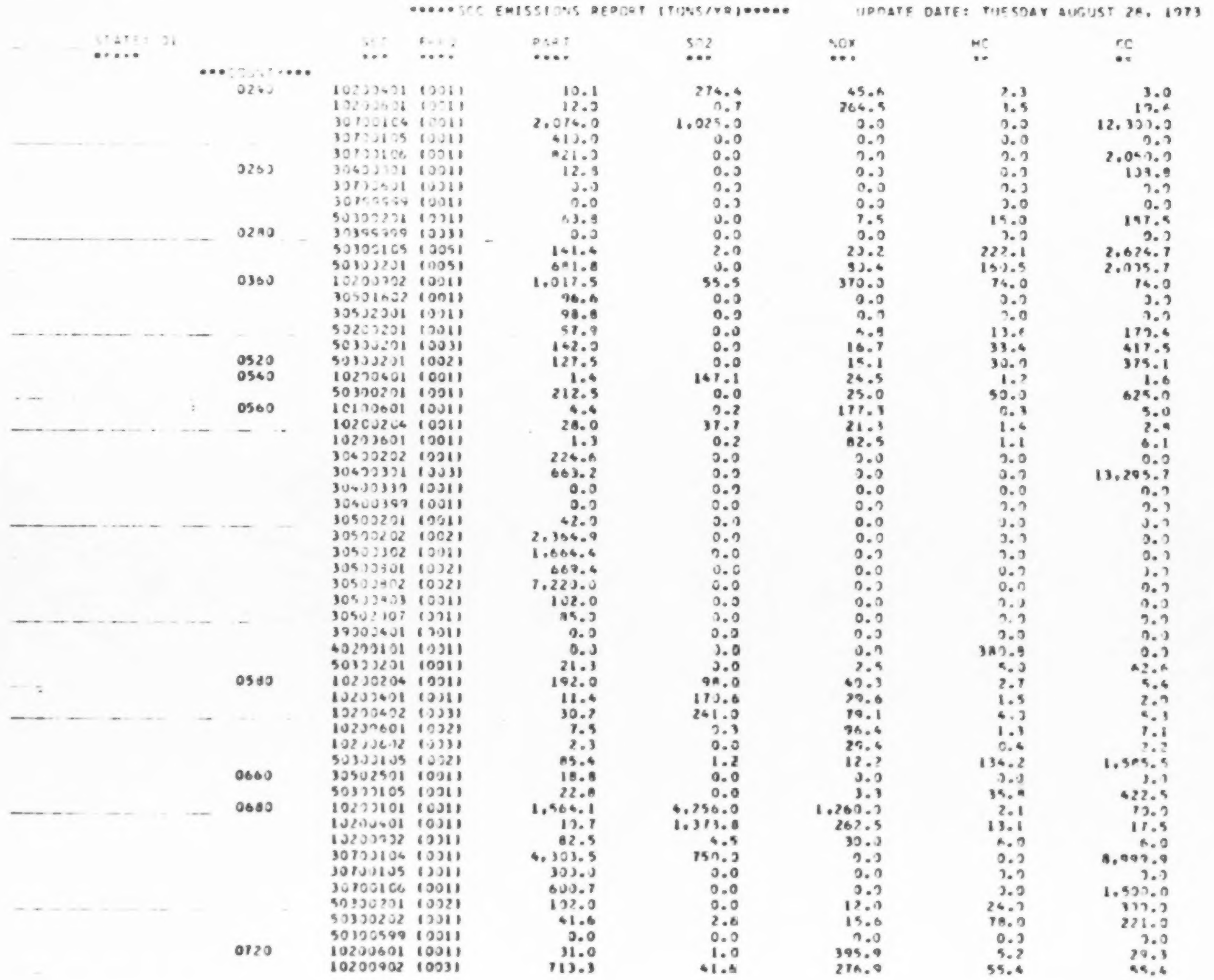
```
          HEAVY VEHICLES            [illegible]      40421      1134242       113429       874172
          OFF-HIGHWAY               [illegible]      32140       448944        44098       264166
          RAIL                           52147      135712       154441       104344       148151
          TOTAL (DIESEL)            [illegible]     248312      1734847       262421      1088449

      AIRCRAFT

          MILITARY                      147475       28181         7447       343120       368317
          CIVIL                           4439        1676         7022        37364       213539
          COMMERCIAL                     58225       12235        34851       132542       314362
          TOTAL (AIRCRAFT)              211139       42371       113421       513031       896217

      VESSELS

          BITUMINOUS COAL                 1273        3163          141         1273         5729
          DIESEL FUEL                    13867       35535        41402        27334        38269
          RESIDUAL OIL                    4035       26262        15745          747           52
          GASOLINE                         423         514        10095        58896       311523
          TOTAL (VESSELS)                21799       65474        75033        88250       355573

      GAS HANDLING EVAP LOSS                 0           0            0       913379            0

      TOTAL (TRANSPORTATION)            716381      582501      7814145     14517727     69695381

   MISCELLANEOUS (AREA)
   ********************

      SLASH BURNING                     221278           0        25915       259150       777451
      SOLVENT EVAPORATION LOSS               0           0            0      1383855            0
      TOTAL (MISCELLANEOUS)             221278           0        25915      1643005       777451

   OTHER (POINT)                            10           0            0            0            0
   *************

   GRAND TOTAL
   ***********

      AREA SOURCES                     3507413     3589163      9237179     17884687     74560510
      POINT SOURCES                [illegible]    26666951     11940707      5818348     31276595
      TOTAL                        [illegible]    30256066     21177886     23563045    105437205
```

Figure 2.29 (continued). Nationwide, state, or county emission summary.



```
                                    STATIONARY SOURCE FUEL SUMMARY REPORT***

                                        NATIONAL EMISSION DATA SYSTEM
                                        *****************************

                                       ENVIRONMENTAL PROTECTION AGENCY
                                       *******************************

                                                                                       USER FILE CREATEDATE
                                                                                    TUESDAY AUGUST 28, 1973
  COUNTY FUEL REPORT:CALIFORNIA        COUNTY: VENTURA
  ******************                                                                     DATE OF RUN
                                                                                           10/17/73
                                         CURRENT ANNUAL FUEL SUMMARY
                                         ***************************

                ANTH COAL    BITH COAL    RESID OIL    DIST OIL     NAT GAS      PROC GAS     COKE         WOOD
               ***********  ***********  ***********  ***********  ***********  ***********  ***********  ***********
                  TONS         TONS      1000 GALS    1000 GALS    10E6 CUFT    10E6 CUFT       TONS         TONS

 AREA SOURCES
   RESIDENTIAL                                              210         9650                                    1200
   INDUSTRIAL                                 1890         1500          440
   COMM-INSTL                                10040         3650         4100
           TOTAL                             11930         5360        14190                                    1200
 POINT SOURCES
   EXT COMB
     ELEC GEN                                               543        27547
     INDUSTRIAL                                372                      1732
     COMM-INSTL
           TOTAL                               372          543        29279

   INPROCESS

   INTERNL COMB
     ELEC GEN
     INDUSTRIAL                                                      1604069
     COMM-INSTL
           TOTAL                                                     1604069

     GRAND TOTAL                             12302         5903      1647538                                    1200

                LIGNITE      BAGASSE      SW/COAL      LIQ-PETRO    DIESEL       GASOLINE     JET FUEL
               ***********  ***********  ***********  ***********  ***********  ***********  ***********
                  TONS         TONS         TONS      1000 GALS    1000 GALS    1000 GALS    1000 GALS

 POINT SOURCES
   EXT COMB
     ELEC GEN
     INDUSTRIAL
     COMM-INSTL
   INTERNL COMB
     ELEC GEN
     INDUSTRIAL
     COMM-INSTL
     ENG-TEST
           TOTAL

     GRAND TOTAL
```

Figure 2.30 Stationary source fuel summary report.

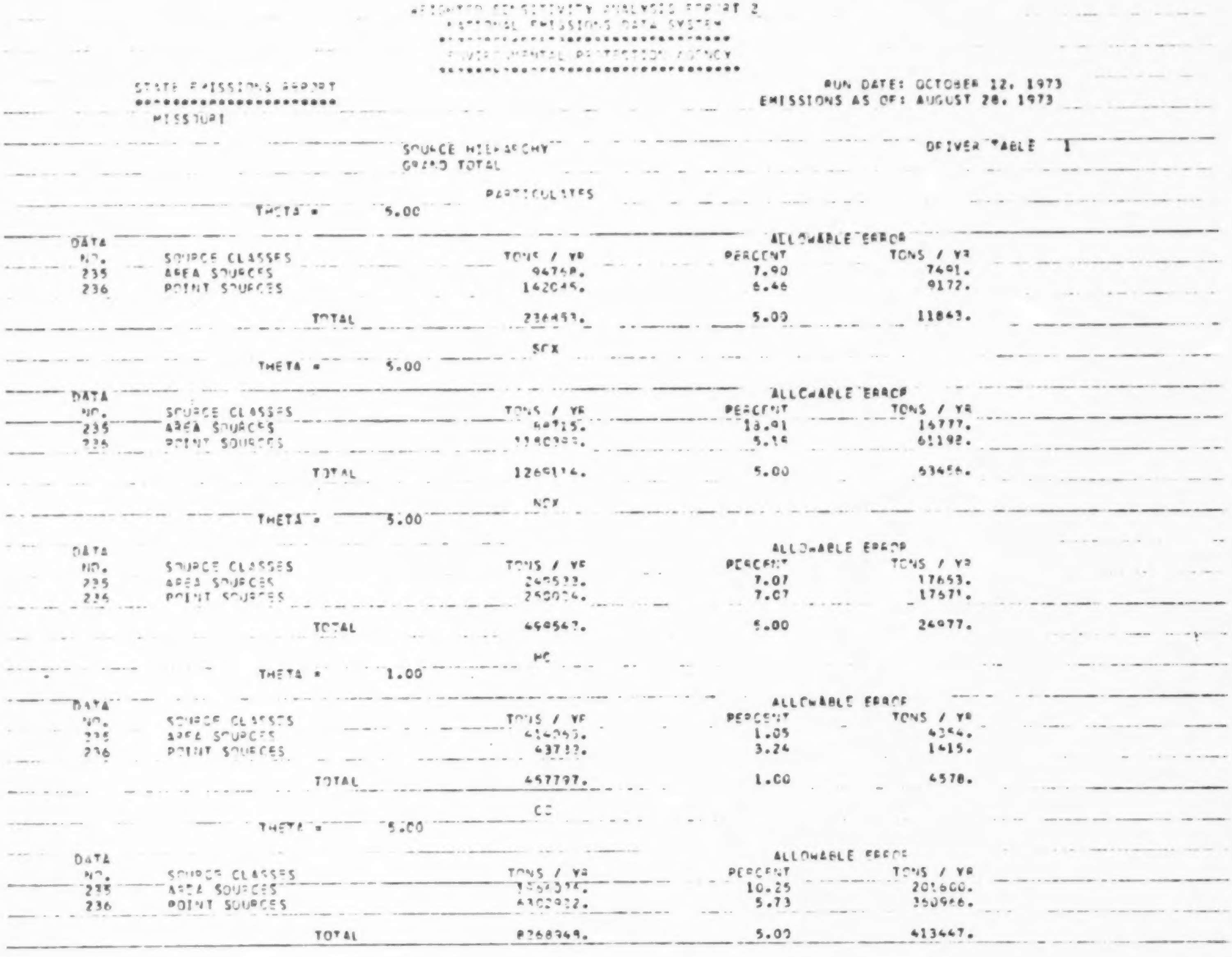


```
                                   *****SCC EMISSIONS REPORT (TONS/YR)*****      UPDATE DATE: TUESDAY AUGUST 28, 1973

        STATE: 01                SCC     FREQ        PART          SO2          NOX          HC           CC
        *****                    ***     ****        ****          ***          ***          **           **
                ***COUNTY****
                0240          10200401 (001)         10.1        274.4         45.6          2.3          3.0
                              10200601 (001)         12.0          0.7        264.5          1.5         19.6
                              30700104 (001)      2,074.0      1,025.0          0.0          0.0     12,300.0
                              30700105 (001)        410.0          0.0          0.0          0.0          0.0
                              30700106 (001)        821.0          0.0          0.0          0.0      2,050.0
                0260          30400301 (001)         12.9          0.0          0.0          0.0        139.9
                              30700601 (001)          0.0          0.0          0.0          0.0          0.0
                              30799999 (001)          0.0          0.0          0.0          0.0          0.0
                              50300201 (001)         63.8          0.0          7.5         15.0        187.5
                0280          30399999 (003)          0.0          0.0          0.0          0.0          0.0
                              50300105 (005)        141.4          2.0         20.2        222.1      2,624.7
                              50300201 (005)        681.8          0.0         90.4        160.5      2,035.7
                0360          10200902 (001)      1,017.5         55.5        370.0         74.0         74.0
                              30501602 (001)         96.6          0.0          0.0          0.0          0.0
                              30502001 (001)         98.8          0.0          0.0          0.0          0.0
                              50200201 (001)         57.9          0.0          6.9         13.6        170.4
                              50300201 (003)        142.0          0.0         16.7         33.4        417.5
                0520          50300201 (002)        127.5          0.0         15.1         30.0        375.1
                0540          10200401 (001)          1.4        147.1         24.5          1.2          1.6
                              50300201 (001)        212.5          0.0         25.0         50.0        625.0
                0560          10100601 (001)          4.4          0.2        177.3          0.3          5.0
                              10200204 (001)         28.0         37.7         21.3          1.4          2.9
                              10200601 (001)          1.3          0.2         82.5          1.1          6.1
                              30400202 (001)        224.6          0.0          0.0          0.0          0.0
                              30400301 (003)        663.2          0.0          0.0          0.0     13,295.7
                              30400330 (001)          0.0          0.0          0.0          0.0          0.0
                              30400399 (001)          0.0          0.0          0.0          0.0          0.0
                              30500201 (001)         42.0          0.0          0.0          0.0          0.0
                              30500202 (002)      2,364.9          0.0          0.0          0.0          0.0
                              30500302 (001)      1,664.4          0.0          0.0          0.0          0.0
                              30500301 (002)        669.4          0.0          0.0          0.0          0.0
                              30500402 (002)      7,220.0          0.0          0.0          0.0          0.0
                              30500403 (001)        102.0          0.0          0.0          0.0          0.0
                              30502007 (001)         85.0          0.0          0.0          0.0          0.0
                              39000401 (001)          0.0          0.0          0.0          0.0          0.0
                              40200101 (001)          0.0          0.0          0.0        380.9          0.0
                              50300201 (001)         21.3          0.0          2.5          5.0         62.6
                0580          10200204 (001)        192.0         98.0         40.3          2.7          5.6
                              10200401 (001)         11.4        170.6         29.6          1.5          2.9
                              10200402 (003)         30.2        241.0         79.1          4.3          5.3
                              10200601 (002)          7.5          0.3         96.4          1.3          7.1
                              10200602 (003)          2.3          0.0         29.4          0.4          2.2
                              50300105 (002)         85.4          1.2         12.2        134.2      1,585.5
                0660          30502501 (001)         18.8          0.0          0.0          0.0          0.0
                              50300105 (001)         22.8          0.0          3.3         35.9        422.5
                0680          10200101 (001)      1,564.1      4,256.0      1,260.0          2.1         70.0
                              10200401 (001)         10.7      1,373.8        262.5         13.1         17.5
                              10200902 (001)         82.5          4.5         30.0          6.0          6.0
                              30700104 (001)      4,303.5        750.0          0.0          0.0      8,999.9
                              30700105 (001)        300.0          0.0          0.0          0.0          0.0
                              30700106 (001)        600.7          0.0          0.0          0.0      1,500.0
                              50300201 (002)        102.0          0.0         12.0         24.0        300.0
                              50300202 (001)         41.6          2.6         15.6         78.0        221.0
                              50300599 (001)          0.0          0.0          0.0          0.0          0.0
                0720          10200601 (001)         31.0          1.0        395.9          5.2         29.3
                              10200902 (003)        713.3         41.6        276.9         55.4         55.4
```

Figure 2.31 SCC emissions report.

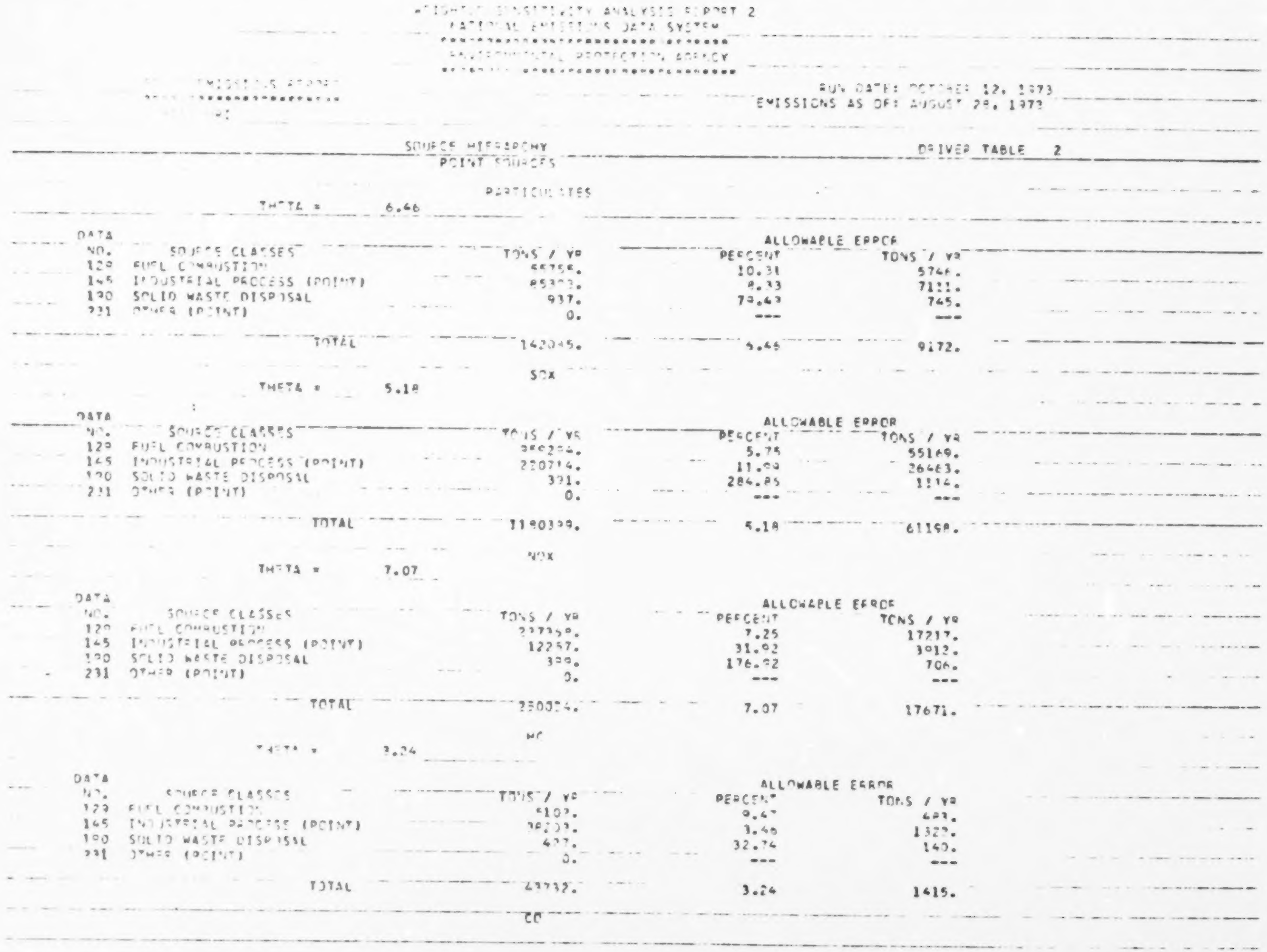
```
[illegible] THURSDAY APRIL 19,                                                05

              NATIONAL EMISSIONS DATA SYSTEM
                   SOURCE INVENTORY

              HIGHEST PLANT NUMBER BY COUNTY

    STATE          COUNTY                      PLANT ID

    CALIFORNIA     ALAMEDA                     05 0060 0030
                   ALPINE                      05 0140
                   AMADOR                      05 0220 0005
                   BUTTE                       05 0960 0016
                   CALAVERAS                   05 0760 0004
                   COLUSA                      05 1540 0008
                   CONTRA COSTA                05 1620 0039
                   DEL NORTE                   05 2000 0020
                   EL DORADO                   05 2290 0003
                   FRESNO                      05 2820 0042
                   GLENN                       05 2980 0005
                   HUMBOLDT                    05 3300 0032
                   IMPERIAL                    05 3380 0022
                   INYO                        05 3460 0007
                   KERN                        05 3480 0031
                   KERN                        05 3480
                   KINGS                       05 3520 0011
                   LAKE                        05 3640 0007
                   LASSEN                      05 3800 0008
                   LOS ANGELES                 05 4200
                   LOS ANGELES                 05 4200
                   MADERA                      05 4320 0014
                   MARIN                       05 4400
                   MARIPOSA                    05 4420
                   MENDOCINO                   05 4540 0038
                   MERCED                      05 4600 0005
                   MODOC                       05 4740 0008
                   MONO                        05 4760 0004
                   MONTEREY                    05 4860 0033
                   NAPA                        05 5020 0001
                   NEVADA                      05 5080 0014
                   ORANGE                      05 5440 0030
                   PLACER                      05 5940 0012
                   PLUMAS                      05 6020 0012
                   RIVERSIDE                   05 6420 0074
                   RIVERSIDE                   05 6420
                   SACRAMENTO                  05 6600 0034
                   SAN BENITO                  05 6660 0010
                   SAN BERNARDINO              05 6700 0024
                   SAN BERNARDINO              05 6700
```

Figure 2.32 Highest plant ID by county.



```
                    WEIGHTED SENSITIVITY ANALYSIS REPORT 2
                       NATIONAL EMISSIONS DATA SYSTEM
                      ********************************
                      ENVIRONMENTAL PROTECTION AGENCY
                      ********************************
    STATE EMISSIONS REPORT                                        RUN DATE: OCTOBER 12, 1973
    **********************                                   EMISSIONS AS OF: AUGUST 28, 1973
      MISSOURI

                             SOURCE HIERARCHY                              DRIVER TABLE  1
                             GRAND TOTAL

                                        PARTICULATES
                   THETA =      5.00

   DATA                                                     ALLOWABLE ERROR
    NO.     SOURCE CLASSES                  TONS / YR      PERCENT     TONS / YR
    235     AREA SOURCES                      94768.          7.90         7491.
    236     POINT SOURCES                    142045.          6.46         9172.

                        TOTAL                236813.          5.00        11843.

                                        SOX
                   THETA =      5.00

   DATA                                                     ALLOWABLE ERROR
    NO.     SOURCE CLASSES                  TONS / YR      PERCENT     TONS / YR
    235     AREA SOURCES                      88715.         18.91        16777.
    236     POINT SOURCES                   1180399.          5.18        61192.

                        TOTAL               1269114.          5.00        63456.

                                        NOX
                   THETA =      5.00

   DATA                                                     ALLOWABLE ERROR
    NO.     SOURCE CLASSES                  TONS / YR      PERCENT     TONS / YR
    235     AREA SOURCES                     249533.          7.07        17653.
    236     POINT SOURCES                    250034.          7.07        17671.

                        TOTAL                499567.          5.00        24977.

                                        HC
                   THETA =      1.00

   DATA                                                     ALLOWABLE ERROR
    NO.     SOURCE CLASSES                  TONS / YR      PERCENT     TONS / YR
    235     AREA SOURCES                     414065.          1.05         4354.
    236     POINT SOURCES                     43732.          3.24         1415.

                        TOTAL                457797.          1.00         4578.

                                        CO
                   THETA =      5.00

   DATA                                                     ALLOWABLE ERROR
    NO.     SOURCE CLASSES                  TONS / YR      PERCENT     TONS / YR
    235     AREA SOURCES                    1965427.         10.25       201600.
    236     POINT SOURCES                   6302922.          5.73       360966.

                        TOTAL               8268349.          5.00       413447.
```

Figure 2.33 Weighted sensitivity analysis - grand total.



```
                              WEIGHTED SENSITIVITY ANALYSIS REPORT 2
                                NATIONAL EMISSIONS DATA SYSTEM
                                *******************************
                               ENVIRONMENTAL PROTECTION AGENCY
                               ********************************
        EMISSIONS REPORT                                                      RUN DATE: OCTOBER 12, 1973
    ********************                                            EMISSIONS AS OF: AUGUST 29, 1973

                              SOURCE HIERARCHY                                      DRIVER TABLE   2
                               POINT SOURCES

                                  PARTICULATES
                THETA =      6.46

   DATA                                                              ALLOWABLE ERROR
    NO.        SOURCE CLASSES                     TONS / YR        PERCENT      TONS / YR
   129  FUEL COMBUSTION                              55755.          10.31          5746.
   145  INDUSTRIAL PROCESS (POINT)                   85353.           8.33          7111.
   190  SOLID WASTE DISPOSAL                           937.          79.43           745.
   231  OTHER (POINT)                                    0.           ---            ---

                      TOTAL                         142045.           6.46          9172.

                                  SOX
                THETA =      5.18

   DATA                                                              ALLOWABLE ERROR
    NO.        SOURCE CLASSES                     TONS / YR        PERCENT      TONS / YR
   129  FUEL COMBUSTION                             959294.           5.75         55169.
   145  INDUSTRIAL PROCESS (POINT)                  230714.          11.99         26463.
   190  SOLID WASTE DISPOSAL                           331.         284.85          1114.
   231  OTHER (POINT)                                    0.           ---            ---

                      TOTAL                        1190339.           5.18         61158.

                                  NOX
                THETA =      7.07

   DATA                                                              ALLOWABLE ERROR
    NO.        SOURCE CLASSES                     TONS / YR        PERCENT      TONS / YR
   129  FUEL COMBUSTION                             237358.           7.25         17217.
   145  INDUSTRIAL PROCESS (POINT)                   12257.          31.92          3912.
   190  SOLID WASTE DISPOSAL                           399.         176.92           706.
   231  OTHER (POINT)                                    0.           ---            ---

                      TOTAL                         250014.           7.07         17671.

                                  HC
                THETA =      3.24

   DATA                                                              ALLOWABLE ERROR
    NO.        SOURCE CLASSES                     TONS / YR        PERCENT      TONS / YR
   129  FUEL COMBUSTION                               5107.           9.47           483.
   145  INDUSTRIAL PROCESS (POINT)                   38203.           3.46          1323.
   190  SOLID WASTE DISPOSAL                           427.          32.74           140.
   231  OTHER (POINT)                                    0.           ---            ---

                      TOTAL                          43737.           3.24          1415.

                                  CO
```

Figure 2.34 Weighted sensitivity analysis - point sources.

```
                        THETA =      5.73

     DATA
      NO.      SOURCE CLASSES                                                         ALLOWABLE ERROR
      123  FUEL COMBUSTION                          TONS / YR              PERCENT           TONS / YR
      145  INDUSTRIAL PROCESS (POINT)                6234050.                 5.76            358988.
      190  SOLID WASTE DISPOSAL                        61403.                58.02             35628.
      231  OTHER (POINT)                                7468.               166.39             12425.
                                                           0.                  ---               ---

                            TOTAL                    6302921.                 5.73            360966.

     NOTE: NEGATIVE THETAS AND PERCENT ALLOWABLE ERRORS (SIGMA) DENOTE VALUES GIVEN TO THE PROGRAM
```

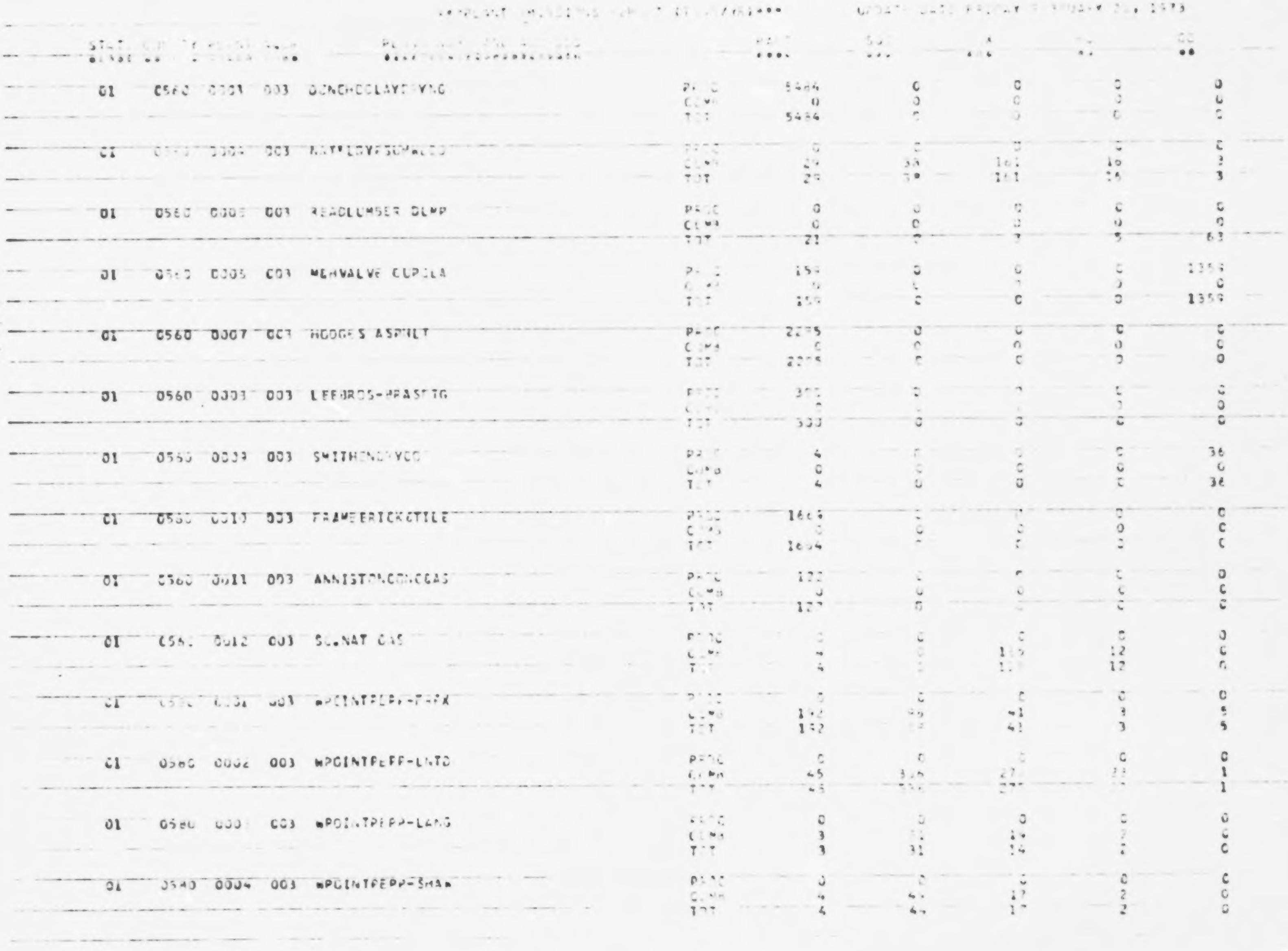
Figure 2.34 (continued). Weighted sensitivity analysis - point sources.

process, solid waste, and miscellaneous sources. The retrieval keys are the same as for the emissions summary report.

12. Plant Emission Report (Figure 2.35) - This useful output totals all emission point emissions within all facilities in a given state by fuel combustion and process, and lists the state, county, AQCR, and plant numbers. It also shows the plant name and grand total emissions. The retrieval keys are:

    Nation
    State
    AQCR

Printouts can be requested through NEDS contact personnel in the EPA Regional Office.



```
 [illegible]                                                    [illegible]

 [illegible]                                         [illegible]  [illegible]  [illegible]  [illegible]  CO

 01  0560  0001  003  DUNCHCOLAYDRYNG         PROC   5484     0     0     0     0
                                              COMB      0     0     0     0     0
                                              TOT    5484     0     0     0     0

 01  [illegible]  0004  003  [illegible]      PROC      0     0     0     0     0
                                              COMB     29    38   161    16     3
                                              TOT      29    38   161    16     3

 01  0560  0005  003  READLUMBER DLMP         PROC      0     0     0     0     0
                                              COMB      0     0     0     0     0
                                              TOT      21     7     3     5    63

 01  0560  0006  003  MEHVALVE CUPOLA         PROC    159     0     0     0  1359
                                              COMB      0     0     0     0     0
                                              TOT     159     0     0     0  1359

 01  0560  0007  003  HOOGES ASPHLT           PROC   2275     0     0     0     0
                                              COMB      0     0     0     0     0
                                              TOT    2275     0     0     0     0

 01  0560  0008  003  LEEBROS-BRASFTG         PROC    333     0     0     0     0
                                              COMB      0     0     0     0     0
                                              TOT     333     0     0     0     0

 01  0560  0009  003  SMITHENDRYCO            PROC      4     0     0     0    36
                                              COMB      0     0     0     0     0
                                              TOT       4     0     0     0    36

 01  0560  0010  003  FRAMEBRICK&TILE         PROC   1664     0     0     0     0
                                              COMB      0     0     0     0     0
                                              TOT    1664     0     0     0     0

 01  0560  0011  003  ANNISTONCONCGAS         PROC    122     0     0     0     0
                                              COMB      0     0     0     0     0
                                              TOT     122     0     0     0     0

 01  0560  0012  003  SO.NAT GAS              PROC      0     0     0     0     0
                                              COMB      4     0   115    12     0
                                              TOT       4     0   115    12     0

 01  0580  0001  003  WPOINTPEPP-[illegible]  PROC      0     0     0     0     0
                                              COMB    152    99    41     3     5
                                              TOT     152    99    41     3     5

 01  0580  0002  003  WPOINTPEPP-UNTO         PROC      0     0     0     0     0
                                              COMB     45   326   [illegible]  [illegible]  1
                                              TOT      45   [illegible]  [illegible]  [illegible]  1

 01  0580  0003  003  WPOINTPEPP-LANG         PROC      0     0     0     0     0
                                              COMB      3    31    14     2     0
                                              TOT       3    31    14     2     0

 01  0580  0004  003  WPOINTPEPP-SHAW         PROC      0     0     0     0     0
                                              COMB      4    44    17     2     0
                                              TOT       4    44    17     2     0
```

Figure 2.35 Plant emissions summary.

3.0 EMISSIONS INVENTORY SUBSYSTEM (EIS)

3.1 SYNOPSIS OF CDHS

The U.S. Environmental Protection Agency has developed the Comprehensive Data Handling System (CDHS) for use by state and local air pollution control agencies. These agencies can install CDHS on their own computers, or on computers to which they have access, without incurring the significant costs involved with developing computer software systems. CDHS includes four subsystems:

1. Air Quality Data Handling Subsystem (AQDHS)
2. Enforcement Management Subsystem (EMS)
3. Emissions Inventory Subsystem (EIS)
4. Emissions Inventory Subsystem/Permit and Registration (EIS/PR)

The AQDHS is for storage and retrieval of air quality monitoring data; it corresponds functionally to the SAROAD system of EPA. The EMS is for storage and retrieval of compliance data, including features for scheduling enforcement activities; EMS corresponds functionally to the Compliance Data System of EPA. The EIS is for storage and retrieval of point source and area source emissions data; it corresponds functionally to the NEDS of EPA. EIS/PR per-forms all the functions of EIS and also allows user to store, retrieve, and maintain any data which would be useful in his permit and registration operation. Any or all subsystems of CDHS are available to state and local agencies from EPA on request. EPA is committed to the support and maintenance of the CDHS subsystems. The CDHS subsystems and the corresponding EPA systems are mutually supportive, since data from each EPA system can be direct input to the corresponding CDHS subsystem, and vice versa.

3.2 PURPOSE AND CAPABILITIES OF EIS

3.2.1 Purpose of EIS

The EIS was developed to provide state and local air pollution control agencies with a fully developed software capability for computerized handling of point source and area source emissions data. The EIS can accept emissions data directly from NEDS for updating purposes and also can produce emissions data in a format suitable for updating the NEDS system. This updating capability provides the opportunity for EPA to maintain NEDS on a more current basis than possible with present manual updating procedures. The updating capability of EIS simplifies the procedures by which a state can meet the semiannual reporting requirements of NEDS. For more detailed information on this system, refer to *Comprehensive Data Handling System (CDHS), Emissions Inventory Subsystem Users Guide*, APTD-1550 (Reference 10) and *Comprehensive Data Handling System (CDHS)*, Emissions Inventory Subsystem Program Documentation, APTD-1551 (Reference 11).

3.2.2 Capabilities of EIS

The reporting capabilities of EIS are indicated by the following summary of some important features of the system.

- Input to EIS is from cards keypunched from EIS load sheets or from NEDS cards or card image format which EIS will convert to its own internal format.
- EIS card 23 contains the emission factor used to estimate a specific pollutant emission, if a factor was used. EIS allows the user to generate a table of emission factors versus SCC's (table supplied by EPA) which the system can use to automatically calculate controlled emission estimates.
- A file maintenance program updates the master file from EIS transactions keypunched from EIS load sheets or from EIS transactions generated from NEDS cards.
- Five output programs produce three printed reports and two types of punched card or magnetic tape output.
- The EIS system contains the same information as NEDS, with added features, that make it a more useful tool for state and local agencies.

Three major reports are routinely available from EIS.

1. File Summary Report - This report summarizes the following data values from the master file with the breakpoints specified by the list of allowable user names: source count (summary of sources emitting a specified pollutant), estimated emissions, actual (measured) emissions, allowable emissions (based on standards), and control equipment costs.
2. File Listing - A detailed formatted listing of the EIS master file.
3. NEDS Area Source Report - A formatted listing of NEDS area source records.

Since EIS is programmed in COBOL, an easily maintainable programming language, users of EIS with programming services available could expand the EIS reporting capabilities.

A retrieval program selects data to be output from the master file. The data are specified through retrieval cards that include names of data fields, sort specifications, and operational qualifiers. The qualifiers or relational operator codes, allow data in specified fields of each record to be compared with numeric or alphanumeric literal values designated by the user. The qualifier codes are:

Code	Meaning
=	equal
<	less than
>	greater than
N=	not equal
N<	not less than
N>	not greater than

The relational operator codes can be used to compare any of the data elements in the following lists. Formats and programming language constraints are discussed in detail in APTD-1550.

The following list of names from the fixed segment may be referenced in a retrieval specification statement in either EIS fixed format or COBOL language. Segments are explained in Section 3.4.

AQCR
CITY
CONTACT
COUNTY
DATE-OF-SEGMENT
PROPERTY-AREA
SEGMENT-DAY
SEGMENT-ID
SEGMENT-YEAR
STATE

LOCAL-CONTROL

NUMBER-OF-EMPLOYEES

OWNER

PLANT-ID

PRINCIPAL-PRODUCT

TELEPHONE

USER-CONTROL-REGION

USER-PLANT-ID

UTM-ZONE

The following two names from the fixed segment may be references in a retrieval specification in the COBOL language only.

ESTABLISHMENT

MAILING-ADDRESS

The following list of names from the repeating portion of the point source segment may be referenced in a retrieval specification statement in either EIS fixed format or COBOL language.

ALLOWABLE

CNTL-EQUIP-COST

CONTROL-EQUIPMENT

EMISSION-UNITS

EMISSIONS

EST-CNTROL-EFF

ESTIMATES

ESTIMATION-METHOD

MEASURED

POLLUTANT-ID

PRIMARY

SECONDARY

TEST-METHOD

The following list of names from the point source segment may be referenced in a retrieval specification statement in either EIS fixed format or COBOL language.

ANNUAL-THRUPUT
BOILER-DESIGN-CAPACITY
COMPLIANCE-SCHEDULE
COMPLIANCE-SCHEDULE-MONTH
COMPLIANCE-SCHEDULE-YEAR
COMPLIANCE-STATUS
COMPLIANCE-STATUS-DAY
COMPLIANCE-STATUS-MONTH
COMPLIANCE-STATUS-UPDATE
COMPLIANCE-STATUS-YEAR
CONTROL-REGULATIONS
DAY-WEEK
DEC-FEB
DIAMETER
ECAP

EMISSION-NBR
FLOW-RATE
HEIGHT
HOURS-DAY
IPP
JUN-AUG
LATITUDE
LATITUDE-DEGREE
LATITUDE-MINUTE
LATITUDE-SECOND
LONGITUDE
LONGITUDE-DEGREE
LONGITUDE-MINUTE
LONGITUDE-SECOND
MAR-MAY
NEDS
NORMAL-OPERATING
PLUME
POINT-ID
POINT-SOURCE-DATE
POINTS-PER-STACK
REG-1
REG-2
REG-3
SEP-NOV
SIC
STACK-HEAT
STACK-DATA
TEMPERATURE
USER
UTM-COORDINAT
UTM-HORIZONTA
UTM-VERTICAL
VELOCITY
WEEK-YEAR

A sorting option allows for sorting retrieved data into ascending or descending sequence by data field before printing. For example, it is possible to retrieve all records that contain a specified pollutant ID and to sort the records in descending sequence by plant within county and in ascending sequence by pollutant ID.

3.3 NEDS-EIS RELATIONSHIPS

3.3.1 File Structures - NEDS/EIS

The EIS master file is divided into three hierarchical levels called Segment Type 0, Segment Type 1, and Segment Type 2. Segment Type 0 contains plant ID and location data. Segment Type 1 contains point source identification, operating, compliance, control, and emissions data. Segment Type 2 contains point source operating rates and fuel data. Input to the master file segments is from nine EIS cards. The relationships between these EIS transaction cards, the EIS master file segments, and NEDS transaction cards are illustrated in Figure 3.1.

3.3.2 NEDS to EIS File Conversion

A program is provided for converting NEDS point source input cards to EIS transaction card format. Most data items in the EIS transaction records that have no corresponding data items in the NEDS input records are set to blank. Items for which values are assigned are:

- Set-ID (Segment-1-ID)
- Pollutant-ID (SAROAD codes)
- Segment-2-ID
- Emission-Factor-Source (This flags another program to insert emission factors into the transaction cards)

Another program is provided for converting NEDS area source input to EIS area source transaction card format. Data items not having corresponding data items in the NEDS transactions are set to blank except for the following, which are assigned by the system:

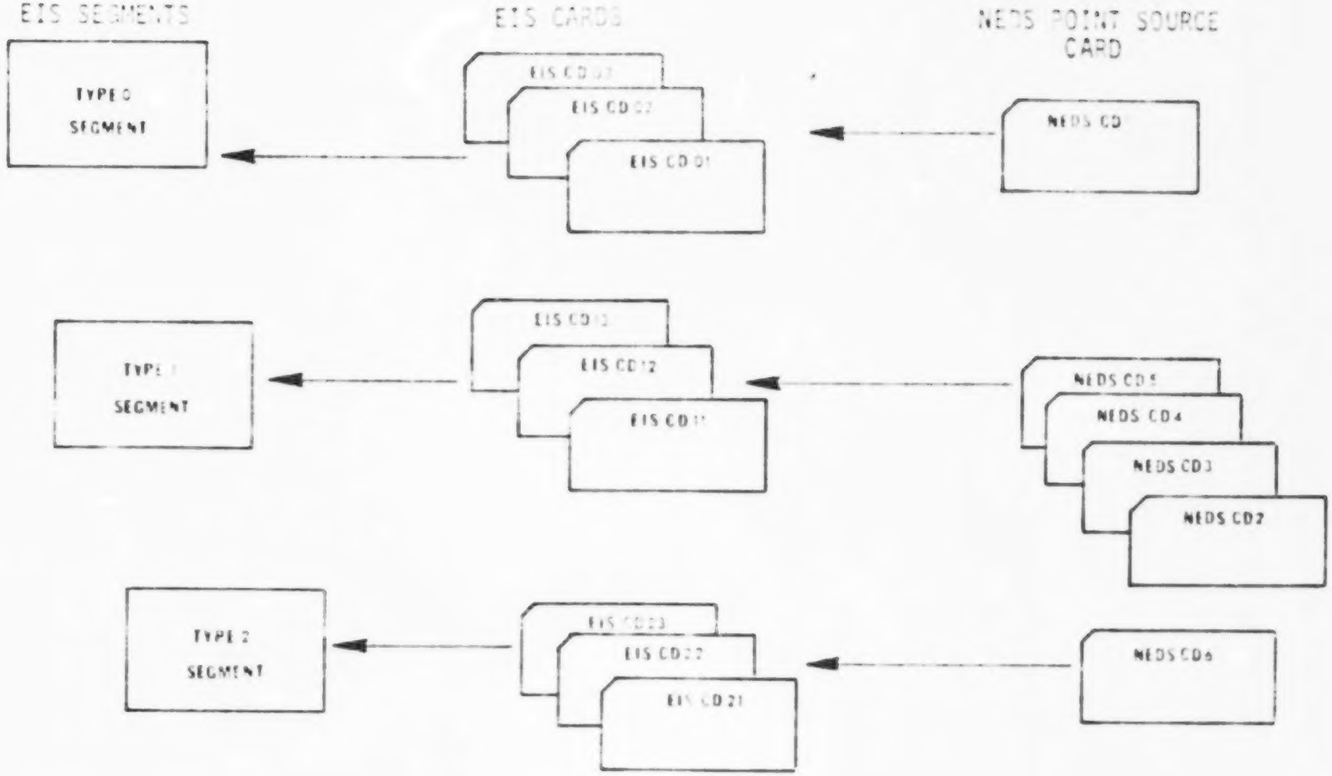

EIS SEGMENTS
EIS CARDS
NEDS POINT SOURCE CARD
TYPE 0 SEGMENT
EIS CD 03
EIS CD 02
EIS CD 01
NEDS CD
TYPE 1 SEGMENT
EIS CD 13
EIS CD 12
EIS CD 11
NEDS CD 5
NEDS CD 4
NEDS CD 3
NEDS CD 2
TYPE 2 SEGMENT
EIS CD 23
EIS CD 22
EIS CD 21
NEDS CD 6

Figure 3.1 Relationship between EIS transaction cards, EIS master file segments, and NEDS transaction cards.

- User-Plant-ID
- Plant-ID
- Number of Employees
- Set-ID
- Neds-Point-ID
- User-Point-ID
- SIC
- IPP
- Pollutant-ID
- Estimation Method
- SCC
- Fuel, Process, Solid Waste Rate

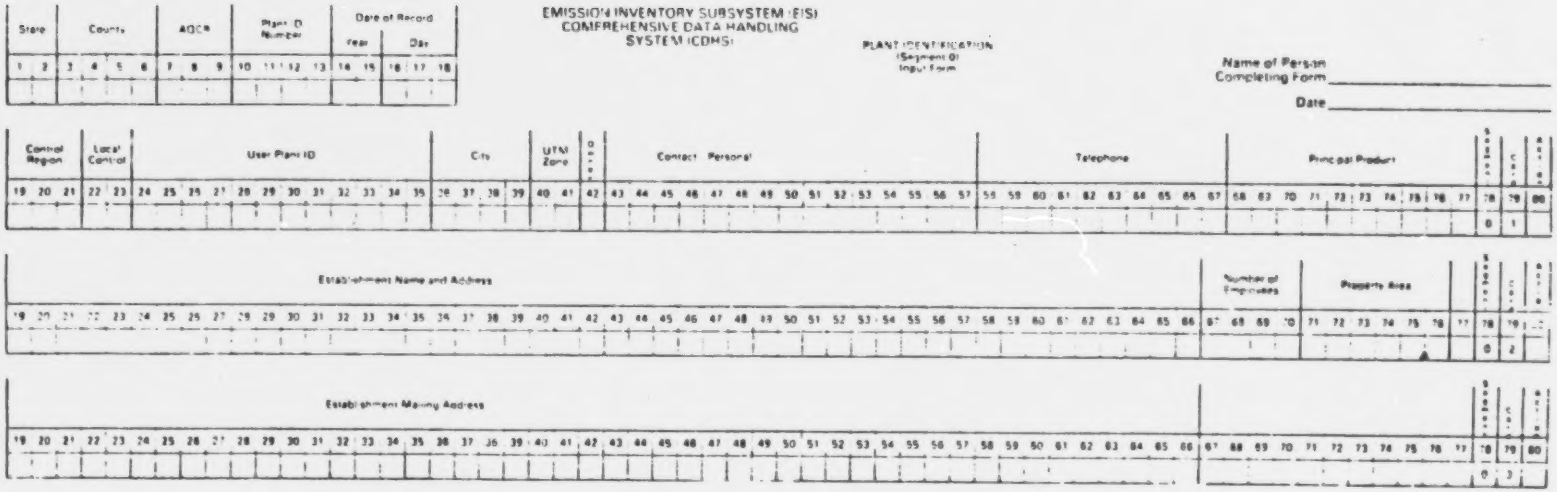
The programs assigned codes are not necessarily synonymous with the titles of the fields, but rather are specific for area source applications.

3.3.3 EIS to NEDS File Conversion

Two programs are provided to generate NEDS point source or area source transaction cards from the EIS master file. A listing of errors that occurred during the conversion is produced. The point source or area source cards produced can be listed by separate programs if desired.

3.4 EIS CODING REQUIREMENTS

Figures 3.2 through 3.4 illustrate the input coding forms used for EIS. The following pages present explanations of the fields on the coding forms, instructions for coding, and the add, change, and delete procedures for EIS.



EMISSION INVENTORY SUBSYSTEM (EIS)
COMPREHENSIVE DATA HANDLING
SYSTEM (CDHS)

PLANT IDENTIFICATION
(Segment 0)
Input Form

Name of Person
Completing Form ______________________

Date ______________________

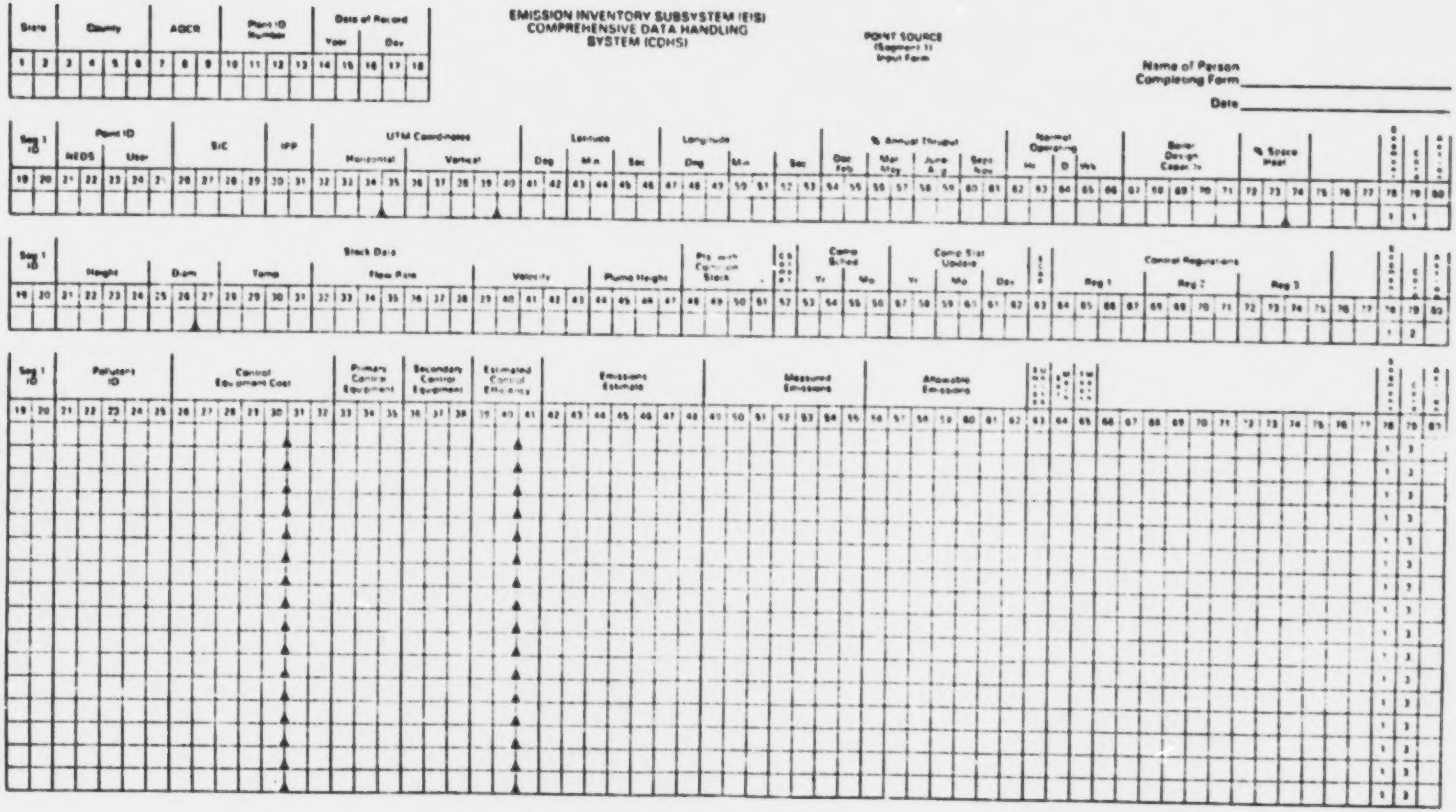
State	County	AQCR	Plant ID Number	Date of Record Year	Date of Record Day
1 2	3 4 5 6	7 8 9	10 11 12 13	14 15	16 17 18

Control Region	Local Control	User Plant ID	City	UTM Zone		Contact Personal	Telephone	Principal Product			
19 20 21	22 23	24 25 26 27 28 29 30 31 32 33 34 35	36 37 38 39	40 41	42	43 44 45 46 47 48 49 50 51 52 53 54 55 56 57	58 59 60 61 62 63 64 65 66 67	68 69 70 71 72 73 74 75 76 77	78	79	80
									0	1	

Establishment Name and Address	Number of Employees	Property Area				
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66	67 68 69 70	71 72 73 74 75 76	77	78	79	80
				0	2	

Establishment Mailing Address				
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66	67 68 69 70 71 72 73 74 75 76 77	78	79	80
		0	3	

Figure 3.2 EIS coding form - plant identification (Segment 0).



EMISSION INVENTORY SUBSYSTEM (EIS)
COMPREHENSIVE DATA HANDLING
SYSTEM (CDHS)

POINT SOURCE
(Segment 1)
Input Form

Name of Person Completing Form ____________

Date ____________

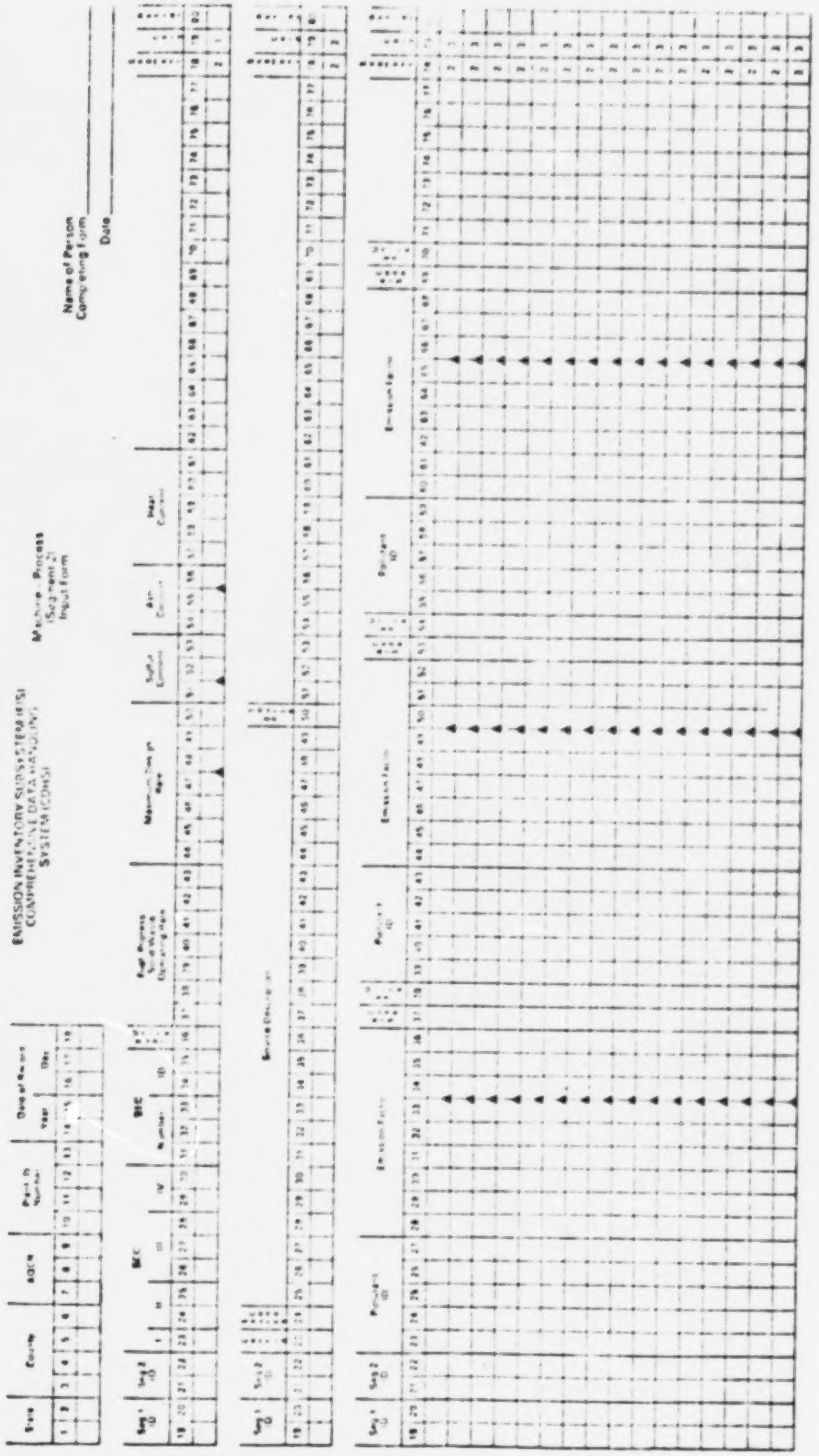
State	County	AQCR	Plant ID Number	Date of Record	
				Year	Day
1 2	3 4 5 6	7 8 9	10 11 12 13	14 15	16 17 18

Seg 1 ID	Point ID		SIC	IPP	UTM Coordinates		Latitude			Longitude			% Annual Thruput				Normal Operating			Boiler Design Capacity	% Space Heat		[illegible]	[illegible]	[illegible]
	NEDS	User			Horizontal	Vertical	Deg	Min	Sec	Deg	Min	Sec	Dec Feb	Mar May	June Aug	Sept Nov	Hr	D	Wk						
19 20	21 22	23 24 25	26 27 28 29	30 31	32 33 34 35	36 37 38 39 40	41 42	43 44	45 46	47 48 49	50 51	52 53	54 55	56 57	58 59	60 61	62 63	64	65 66	67 68 69 70 71	72 73 74	75 76 77	78	79	80
																							1	1	

Seg 1 ID	Stack Data						Pts with Common Stack	[illegible]	Comp Sched		Comp Stat Update			[illegible]	Control Regulations				[illegible]	[illegible]	[illegible]
	Height	Diam	Temp	Flow Rate	Velocity	Plume Height			Yr	Mo	Yr	Mo	Day		Reg 1	Reg 2	Reg 3				
19 20	21 22 23 24	25 26 27	28 29 30 31	32 33 34 35 36 37 38	39 40 41 42 43	44 45 46 47	48 49 50 51	52	53 54	55 56	57 58	59 60	61 62	63	64 65 66 67	68 69 70 71	72 73 74 75	76 77	78	79	80
																			1	2	

Seg 1 ID	Pollutant ID	Control Equipment Cost	Primary Control Equipment	Secondary Control Equipment	Estimated Control Efficiency	Emissions Estimate	Measured Emissions	Allowable Emissions	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
19 20	21 22 23 24 25	26 27 28 29 30 31 32	33 34 35	36 37 38	39 40 41	42 43 44 45 46 47 48	49 50 51 52 53 54 55	56 57 58 59 60 61 62	63	64	65	66 67 68 69 70 71 72 73 74 75 76 77	78	79	80
													1	3	
													1	3	
													1	3	
													1	3	
													1	3	
													1	3	
													1	3	
													1	3	
													1	3	
													1	3	
													1	3	
													1	3	
													1	3	
													1	3	
													1	3	

Figure 3.3 EIS coding form - point source (Segment 1).



EMISSION INVENTORY SUBSYSTEM (EIS)
COMPREHENSIVE DATA HANDLING
SYSTEM (CDHS)

Machine – Process
(Segment 2)
Input Form

Name of Person
Completing Form

Date

Figure 3.4 EIS coding form - machine/process (Segment 2).

3.4.1 EIS Coding Instructions

All EIS fields which correspond to a NEDS field are to be coded according to the NEDS procedures. When establishing an EIS system it is suggested that the NEDS to EIS conversion program be used to build an EIS data base from existing NEDS data. The EIS data base can then be updated.

3.4.1.1 Card Columns 1-18 of All Cards:

1. State Code: State identification number as defined by the SAROAD air quality numbering system.

2. County Code: Codes to be used are listed in the SAROAD Station Coding Manual for Aerometric Sampling Networks, APTD-0907 (Reference 2).

3. AQCR Number: Number for the Air Quality Control Region in which the plant is located.

4. Plant ID: Identification of each source in a county. The numbering system is sequential, starting with the number one and continuing until all facilities containing point sources that are located in a given county are assigned a number. This must be identical to the NEDS plant ID.

5. Date of Record: The Julian date for the data recorded on the card. The format for this field is YYDDD.

3.4.1.2 Card 01

1. Control Region: A user-defined field to identify state or county control areas.

2. Local Control: A user-defined field to identify plants that are physically in one control region but have control responsibility in another region.

3. Plant ID: A user-defined field to be used if the local identification conventions differ from those of NEDS.

4. City: The 4-digit SAROAD code number corresponding to the city in which the source is located. A few cities in the United States are not considered to be inside any county but are considered independent entities. In such cases, enter the city code in both the city and county code fields.

5. UTM Zone: The zone number must be known in order to locate the point source via the UTM coordinate system; this number is found on all USGS maps showing UTM coordinates. While some states are within a single UTM zone, many states and counties are in two UTM zones. For this reason a UTM zone number is required for each record.

6. Ownership: A single alphabetic character ownership code. Select the code from the following list:

Symbol	Ownership
P	Private
L	Local government
S	State government
F	Federal government
U	Utility

7. Contact: The last name of the person responsible for pollution control activity at the source. If the responsible individual is not identifiable, record a descriptive and appropriate title.

8. Telephone: The area code and telephone number of the person to be contacted.

9. Principal Product: A brief description of the principal product produced at the plant.

10. Card Number: 01

11. Transaction Code: The transaction codes are:

A - Add
C - Change
D - Delete

3.4.1.3 Card 02

1. Name and Address: Provide a descriptive name for the facility and a usable mailing address. Use common abbreviations whenever possible. The address should include a street number, city, and zip code. The zip code appears in the last five positions of the field.

2. Number of Employees: Number of persons working at this location.

3. Property Area: The area, to the nearest tenth acre, of land occupied by the facility.

4. Card Number: 02.

5. Transaction Code: The transaction codes are:

A - Add
C - Change
D - Delete

3.4.1.4 Card 03

1. Mailing Address: Address of the person to contact if it is different from the establishment name and address.

2. Card Number: 03.

3. Transaction Code: The transaction codes are:

A - Add

C - Change

D - Delete

3.4.1.5 Card 11

1. Segment ID: Each point source set (cards, 11, 12 and 13) creates a point source segment in the master file. Each point source segment under the same facility segment must have a unique segment ID number. This number must also be used to reference a segment when making a change or deletion.

2. Point ID (NEDS): A sequential number designated for each pollutant discharge point within the facility.

3. Point ID (Local): A field for a user-defined point source identification when the NEDS point ID is not sufficient to show local control.

4. SIC Code: Information needed to use the source data for modeling air quality. Enter the appropriate Standard Industrial Classification code.

5. IPP code: Complete this column with the standard process code.

6. UTM Horizontal and Vertical Coordinates: The UTM coordinate system is another means of identifying the location of the point source. Obtain coordinates from USGS maps or equivalent with scales less than 1:62,500. Fill

spaces in these columns with numbers or zeros. Accuracy within 0.1 kilometer is desired.

7. Latitude and Longitude: An alternative means of identifying the location of the point source. Obtain coordinates from USGS maps or equivalent.

8. Percent Annual Throughput: The annual production, consumption, throughput, or other valid number representing operation of the source is proportionally divided into four 3-month periods, as described below. The weighted portion of production occurring in each period is reported as a percentage of total annual throughput. The field is divided into four equal subfields of two numbers each. The first two positions are for December through February; in sequence, the next are for March through May, June through August, and September through November.

9. Normal Operating: Enter the hours per day, days per week, and weeks per year that the source operates under normal and usual conditions.

10. Boiler Design Capacity: A boiler is defined as consisting of a burner, firebox, heat exchanger, and a means of directing a flow of gases through the unit. Units are in millions of BTU per hour based on the maximum input capacity or design of the boiler.

11. Space Heat Percent: Estimate the percent of total fuel used for space heating at the plant. If no fuel is used for space heating, enter a zero in this field.

12. Card Number: 11

13. Transaction Code: The transaction codes are:

A - Add

C - Change

D - Delete

3.4.1.6 Card 12

1. Segment ID: Enter the same number as in the segment ID of the 11 card.

2. Stack Height: If the exact location of the discharge of pollutants is well defined, there will be a stack or some other enclosed, constrained, or physically bound area where pollutants are emitted. In such instances, the stack height is the vertical distance between the point of emission and ground level. If no stack can be identified or if there is a changing locus of emissions within the facility, complete only the Plume Height and Temperature fields, enter zeros in the remaining stack data fields.

3. Stack Equivalent Diameter: The stack diameter is the inside diameter of a round gas exit at the point of emission; for non-round exits, it is an equivalent diameter calculated from the cross-sectional area at point of discharge. Using a measured or estimated cross-sectional area, the equivalent diameter (De) is calculated as follows:

$$De = 1.128 \sqrt{A}$$

where A is in square feet.

4. Stack Temperature: Report the temperature (°F) of the exhaust stream at the stack exit under normal operating

conditions. If measured temperatures are not available, estimate to the nearest 50°F.

5. Exhaust Flow Rate: Record the design or maximum exhaust-gas volume unless measurements are available. Units are cubic feet per minute, representing the total volume of exhaust gas released at the operating temperature of the stack (assume gas pressure is the same as normal atmospheric pressure).

6. Velocity: Record the design or maximum exhaust-gas velocity unless actual measurements are available. Units are feet per minute.

7. Plume Height: Use this field if zeros were entered in the previous fields on stack data (except for temperature). Plume height is a gross estimate, used only when the source has no definable stack.

8. Points with Common Stack: Columns 48 and 49 contain the NEDS point ID of the first point source discharging through the stack. Columns 50 and 51 contain the NEDS point ID of the last point source discharging through the stack. For a complete definition of common stack see APTD-1135.

9. Compliance Status: Select one of the following codes to record the present status of the source under existing legal requirements:

1 Source is in compliance with the most stringent air pollution control requirements.

2 Source is not in compliance with existing legislation and no variance has been given.

3 Source is not in compliance with existing legislation but a variance has been given.

4 Compliance status is unknown.

10. Compliance Schedule: If the compliance status code is 2 or 3, enter the year and month by which this source must be in compliance.

11. Compliance Update: Enter the day, month and year of the most recent change in compliance status for the source. Leave the field blank if compliance status has been reported as unknown (code 4). If the source is in compliance with existing air pollution control legislation, record the time that such legislation was enacted.

12. ECAP: Certain point sources are required to submit to government agencies an Emergency Control Action Program that specifies a detailed plan for immediately reducing emissions whenever air pollution in an area is considered an emergency condition. Use the following list of codes to denote whether an ECAP has been submitted to an appropriate government agency. Leave blank if status is unknown.

0 ECAP is not required

1 ECAP is required but has not been submitted

2 ECAP has been submitted

13. Control Regulations: This field is used to identify air pollution control regulations that are in effect and apply to the source.

14. Card Number: 12

15. Transaction Code: The transaction codes are:

A - Add

C - Change

D - Delete

3.4.1.7 Card 13

1. Segment ID: Enter the same number as in the segment ID of the 11 card.

2. Pollutant ID: A 5-digit code that represents the pollutants whose emissions are being measured. Source is SAROAD Parameter Coding Manual, APTD-0633 (Reference 12).

3. Control Equipment Cost: Enter the annual cost of maintenance and operation of pollution control equipment.

4. Primary Control Equipment: Complete this field with the Control Equipment Identification Code. Report only control devices that reduce the uncontrolled emissions normally associated with the specific source process.

5. Secondary Control Equipment: If an additional control device is installed for this pollutant, enter the Control Equipment Identification Code in this field.

6. Estimated Control Efficiency: Enter the overall collection efficiencies (weight percent) of all control equipment at the point source. Assume that the pollutant load entering the control equipment is the normal, uncontrolled quantity for that specific process.

7. Emissions Estimate: Enter the annual controlled emissions from the point source (tons per year). These

calculations should include the effects of pollutant removal by installed control equipment.

8. Emissions Measured: Enter the annual controlled emissions from the point source (tons per year) as measured by test equipment. These measurements can be compared against the estimates to check the validity of the emission factors.

9. Allowable Emissions: Enter the maximum emissions (tons per year) that the source is legally allowed to discharge into the atmosphere.

10. Emission Units: This field is for future expansion of the system. It will eventually allow the user to specify units for emissions in other than NEDS units. Currently, the system ignores this field.

11. Estimation Method: Use the NEDS code list (Table 2.1) to specify the method used to ascertain estimated emissions. If code 3 is used, the file maintenance program will calculate the estimated emissions if all the factors are present.

12. Test Method: A user-defined code to indicate the method used to ascertain the measured emissions.

13. Card Number: 13

14. Transaction Code: The transaction codes are:

A - Add

C - Change

D - Delete

3.4.1.8 Card 21

1. Segment 1 ID: Enter the same number as in the segment ID of the 11 card for the point source to which this segment belongs.

2. Segment 2 ID: Each fuel process set (Cards 21, 22, and 23) creates a fuel-process segment in the master file. Each fuel-process segment under the same point source segment must have a unique Segment 2 ID number. This number must also be used to reference a particular segment when making a change or deletion.

3. SCC Code: Enter the Source Classification Code process description that most nearly describes the process, by its 8-digit numerical code. If the most appropriate SCC description appears to be significantly different from the actual process, enter nothing in this field, but enter NEW SCC NEEDED in the Source Description field of the 22 card.

4. BEC Code: Enter the Basic Equipment Classification code that describes the equipment or process for this source. The last two digits are used to sequentially number identical units at the same source.

5. Fuel Units: This field is for future expansion of the system. It will eventually allow the user to specify units for the fuel-process field in other than NEDS units. Currently, the system ignores this field.

6. Fuel, Process, Solid Waste: Report the annual figures in this field using the units associated with the SCC code for the process.

7. Maximum Design: Enter the maximum hourly design rate of the process equipment, or the upper operating limit that generally would not be exceeded in normal practice. Units are those corresponding to the SCC for the process.

8. Sulfur and Ash Content: Fill in these columns for all combustion processes. If the process does not burn fuel, enter zero.

9. Heat Content: Complete this field only when the process involves combustion. Units are millions of BTU per SCC.

10. Card Number: 21

11. Transaction Code: The transaction codes are:

A - Add

C - Change

D - Delete

3.4.1.9 Card 22

1. Segment 1 ID: Enter the same number as on the Segment 1 ID of the 21 card.

2. Segment 2 ID: Enter the same number as on the Segment 2 ID of the 21 card.

3. Confidentiality of Data: Process information occasionally is collected by a government agency under a guarantee that the data will be treated in a confidential manner and will not be released to the public. This column indicates whether any data for this source are officially considered confidential. A one (1) indicates confidential

classification, a two (2) no classification, and a blank indicates unknown status.

4. Source Code: Needed for NEDS reporting. Enter the following codes for the process category: B - Boiler, P - Process, C - Other Combustion unit.

5. Source Description: Enter a brief description of the source or comments as needed.

6. Emission Factor Source: If this field contains a T the emission factors insertion program will insert the appropriate emission factors from a table of SCC codes.

7. Card Number: 22

8. Transaction Code: The transaction codes are:

A - Add

C - Change

D - Delete

3.4.1.10 Card 23

1. Segment 1 ID: Enter the same number as in the Segment 1 ID of the 21 card.

2. Segment 2 ID: Enter the same number as in the Segment 2 ID of the 21 card.

3. Pollutant ID Code: This field is a 5-digit code that represents the pollutant whose emissions are being measured. The source is APTD-0633.

4. Emission Factor: The emission factor is a statistical average of the rate at which a pollutant is released to the atmosphere as a result of some activity, such as

combustion or industrial production, divided by the level of that activity. The emission factors for each SCC are given in AP-42.

5. Ash/Sulfur Code: This code indicates whether the ash or sulfur percentage is to be used in the calculation of estimated emissions. The codes are: A - Ash, S - Sulfur, and blank - neither applies.

6. Emission Factor Units: This field is for future expansion. Eventually it will indicate units in which the emission factors are expressed. The emission factors are now treated as standard NEDS units.

7. Card Number: 23

8. Transaction Code: The transaction codes are:

A - Add
C - Change
D - Delete

Note: Card columns 23 to 38 may be repeated two more times on the same 23 card to allow storage of up to three sets of emission factors information on each card.

3.4.2 Add, Change, and Delete

3.4.2.1 Add Cards - Records are created or added to the master file by the following combinations of add cards. Only those fields with the name filled in are required. All other fields may be blanks. At least the three cards shown in each segment are required to create each segment.

- To add a plant segment (type 0 segment):

KEY	DATE		01	A
KEY			02	A
KEY			03	A
1 13	14 18			

- To add a point source segment (type 1 segment), which is allowed to have subordinate to it up to six machine process segments (type 2 segments):

KEY	DATE	ID			11	A
KEY		ID			12	A
KEY		ID	POLL. ID		13	A
1 13	14 18	19 20	21 25		78 79	80

up to 16 cards

KEY	DATE	ID	1D2		21	A
KEY		ID	ID2		22	A
KEY		ID	ID2	POLL. ID	23	A
1 13	14 18	19 20	21 22	23 27	78 79	80

up to 6 sets with up to 16 23 cards per set

Up to 16 unique pollutant ID's are allowed. Thus, multiple-type 13A and 23A cards are allowed. One, two or three pollutant ID's can be present on any type 23A card. Also, since up to six (there must be at least one) machine process (type 2) segments can be subordinate to any point source (type 1) segment, there can be up to six sets of the 21A/22A/multiple 23A-type cards following the last 13A card of each point source segment.

3.4.2.2 Change Cards - Any record on an existing master file can be changed through the use of a change card. Depending on the segment type being changed, certain fields on the card must be filled in. Other than these required fields, any other field on the card that is non-blank will replace the corresponding field of the indicated record on the master file.

To change a field in a master file record, use only the single transaction card that contains that field. For example, assume that the field called Compliance-Status is to be changed. This field is part of the point source (type 1) segment and is included in the type 12 transaction card. Thus only a type 12 change card is required. The type 11 and 13 cards are unnecessary.

Following is the format for each type of change card, with the required fields filled in by name.

- Type 01 change card:

```
|_KEY___|____DATE____|______________________|_01___|C_|
 1  13   14       18                         78 79 80
```

- Type 02 change card:

```
|_KEY___|____DATE____|______________________|_02___|C_|
 1  13   14       18                         78 79 80
```

- Type 03 change card:

```
|_KEY___|____DATE____|______________________|_03___|C_|
 1  13   14       18                         78 79 80
```

- Type 11 change card:

```
|_KEY___|____DATE____|___ID___|_____________|_11___|C_|
 1  13   14       18  19 20                  78 79 80
```

- Type 12 Change card:

```
|_KEY___|____DATE____|___ID___|_____________|_12___|C_|
 1  13   14       18  19 20                  78 79 80
```

° Type 13 change card:

```
|  KEY  |      DATE      |   ID   | POLL. ID |      |   13   | C |
 1   13   14          18  19  20 21       25        78  79    80
```

° Type 21 change card:

```
|  KEY  |      DATE      |   ID   |   ID2   |        |   21   | C |
 1   13   14          18  19  20 21      22            78  79  80
```

° Type 22 change card:

```
|  KEY  |      DATE      |   ID   |   ID2   |        |   22   | C |
 1   13   14          18  19  20 21      22            78  79  80
```

° Type 23 change card:

```
|  KEY  |      DATE      |   ID   |  ID2  | POLL. ID |   23   | C |
 1   13   14          18  19  20 21   22  23      27  78  79  80
```

3.4.2.3 Delete Cards - Three segments (or segment combinations) can be selected from an existing master file. The following cards, with required fields filled in, illustrate how to delete these segments.

° Delete an entire logical record of plant (type 0) segment and all subordinate point source (type 1) and machine process (type 2) segments

```
|  KEY  |                                          |   01   | D |
 1   13                                             78  79  80
```

° Delete a point source (type 1) segment and all subordinate machine process (type 2) segments:

```
|  KEY  |          |   ID   |                       |   11   | D |
 1   13             19  20                           78  79  80
```

° Delete machine process (type 2) segment:

```
|  KEY  |          |   ID   |  ID2  |               |   21   | D |
 1   13             19  20  21  22                   78  79  80
```

In general the Key, ID's, card number, and transaction code are required for all types of transactions. In addition, the pollutant ID and date are required for adding or changing information in the master file.

REFERENCES

1. Guide for Compiling a Comprehensive Emission Inventory. U.S. Environmental Protection Agency, Office of Air Programs. OAP Publication No. APTD-1135 Research Triangle Park, North Carolina. Revised, March 1973.

2. SAROAD Station Coding Manual for Aerometric Sampling Networks. U.S. Environmental Protection Agency, Office of Air Programs. OAP Publication No. APTD-0907. Research Triangle Park, North Carolina. February 1972.

3. Federal Air Quality Control Regions. U.S. Environmental Protection Agency, Office of Air Programs. OAP Publication No. AP-102. Rockville, Maryland. January 1972.

4. Standard Industrial Classification Manual, 1972. U.S. Bureau of the Budget, Office of Statistical Standards. Washington, D.C. 1972.

5. Compilation of Air Pollutant Emission Factors, Second Edition. U.S. Environmental Protection Agency, Office of Air Programs. OAP Publication No. AP-42. Research Triangle Park, North Carolina. April 1973.

6. Source Classification Code and Emission Factor Listing, dated December 1973, issued by NADB.

7. Required NEDS Update Procedures, Part 2 of OAQPS Guideline Series No. 1.2-009. November 2, 1973.

8. NEDS Edit Listings, dated July 25, 1974, issued by NADB.

9. National Emissions Data System Control Device Workbook. U.S. Environmental Protection Agency, Office of Air Programs. OAP Publication No. APTD-1570. Research Triangle Park, North Carolina. July 1973.

10. Comprehensive Data Handling System (CDHS), Emissions Inventory Subsystem Users Guide. U.S. Environmental Protection Agency, Office of Air Programs. OAP Publication No. APTD-1550. Research Triangle Park, North Carolina. July 1973.

11. Comprehensive Data Handling System (CDHS) Emissions Inventory Subsystem Program Documentation. U.S. Environmental Protection Agency, Office of Air Programs. OAP Publication APTD-1551. Research Triangle Park, North Carolina. July 1973.

12. SAROAD Parameter Coding Manual. U.S. Environmental Protection Agency, Office of Air Programs. OAP Publication No. APTD-0633. Research Triangle Park, North Carolina. July 1971.

APPENDIX A

SAROAD CODING CHANGES FOR NEDS PURPOSES

APPENDIX A

SAROAD CODING CHANGES FOR NEDS PURPOSES

For NEDS purposes, county code numbers in this Appendix should be entered in lieu of the Regional Planning District codes in the SAROAD Coding Manual. The states involved are Connecticut, Maine, and Massachusetts. Note that the city code in the SAROAD Coding Manual does not change. For Connecticut and Maine, enter the following codes as the county code number:

CONNECTICUT

County	Code No.
Fairfield	0265
Hartford	0425
Litchfield	0478
Middlesex	0565
New Haven	0705
New London	0725
Tolland	1155
Windham	1505

MAINE

County	Code No.
Androscoggin	0027
Aroostook	0045
Cumberland	0277
Franklin	0445
Hancock	0495
Kennebec	0547
Knox	0595
Lincoln	0645
Oxford	0885
Penobscot	0907
Piscataquis	0935
Sagadahoc	1065
Somerset	1125
Waldo	1183
Washington	1205
York	1325

For Massachusetts, the entry in the county code field is determined by the AQCR. That is, each AQCR has a corresponding county code, as follows:

MASSACHUSETTS

AQCR name	AQCR number	Number entered as county code
Berkshire	117	0187
Central Massachusetts	118	0369
Merrimack Valley - Southern New Hampshire	121	1274
Metropolitan Boston	119	1291
Hartford-New Haven-Springfield (Pioneer)	042	1798
Metropolitan Providence (Southeast)	120	2121

APPENDIX B

STANDARD ABBREVIATIONS FOR USE IN COMMENTS

Under all circumstances, endeavor to make intelligible entries in the comments section of card 6. Use of the following list of suggested abbreviations will aid in providing uniform input to the NEDS system.

Word	Abbreviation	Word	Abbreviatio
And	+ or &	Natural Gas	NG or NAT.G
Average	AVG	Number	NO. or #
Boiler	BLR	Point	PT
Company	CO.	Sulfides	RS
Cyclone	CYCL.	Thousand	M
Divide	DIV	Ton	T
Each	EA	Tons per hour	TPH
Electrostatic Precipitator	ESP	Tons per year	TPY
Emissions	EMISS	Wet Scrubbers	SCRUB.
Emission Factor	EF		
Fabric Filter (or baghouse)	BAG HSE.		
Gallons per minute	GPM		
Hydrogen sulfide	H2S		
Include	INCL		
Information	INFO		
Liquefied Petroleum Gas	LPG		
Million	MM		
Miscellaneous	MISC		

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APPENDIX C

TABLE FOR USE WHEN ASSIGNING PLANT IDENTIFICATION NUMBERS

STATE: ______________ STATE NO.: ________ COUNTY NO: __________

AQCR NO.: __________ COUNTY NAME: __________________

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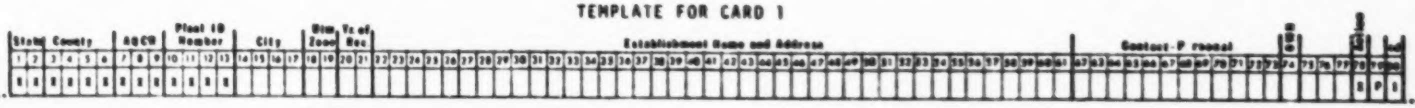
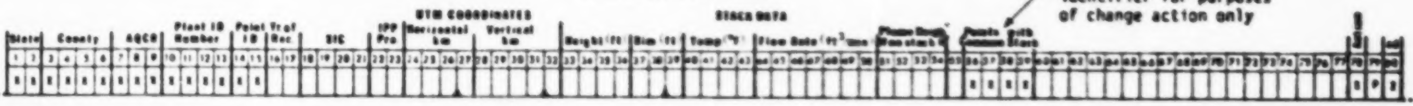
APPENDIX D

TEMPLATES OF NEDS POINT SOURCE CODING FORMS FOR USE WITH IBM FORTRAN CODING FORMS

TEMPLATE FOR CARD 1

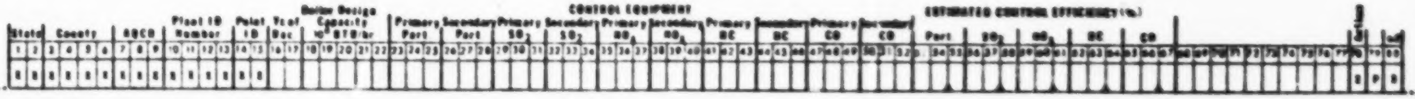

State
County
AQCR
Plant ID Number
City
Utm Zone
Yr of Rec
Establishment Name and Address
Contact-Personal

TEMPLATE FOR CARD 2

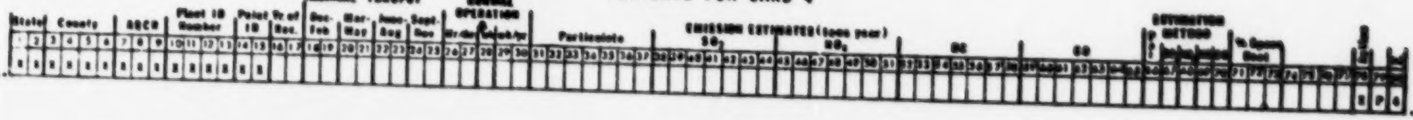

State
County
AQCR
Plant ID Number
Point ID
Yr of Rec
SIC
IPP Pro
UTM COORDINATES
Horizontal km
Vertical km
STACK DATA
Height (ft)
Diam (ft)
Temp (°F)
Flow Rate (ft³/min)
Plume Height w/o stack
Points with Common Stack

NOTE: This is an identifier for purposes of change action only

TEMPLATE FOR CARD 3

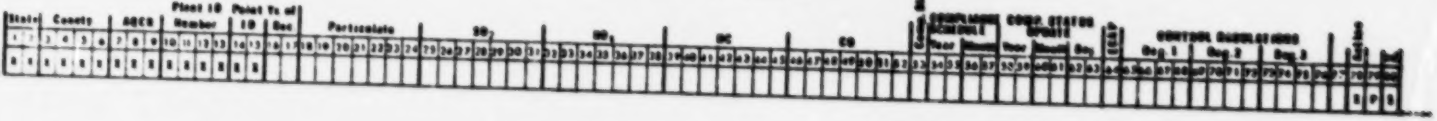

State
County
AQCR
Plant ID Number
Point ID
Yr of Rec
Boiler Design Capacity 10⁶ BTU/hr
CONTROL EQUIPMENT
Primary Part
Secondary Part
Primary SO₂
Secondary SO₂
Primary NOₓ
Secondary NOₓ
Primary HC
Secondary HC
Primary CO
Secondary CO
ESTIMATED CONTROL EFFICIENCY (%)
Part
SO₂
NOₓ
HC
CO

TEMPLATE FOR CARD 4



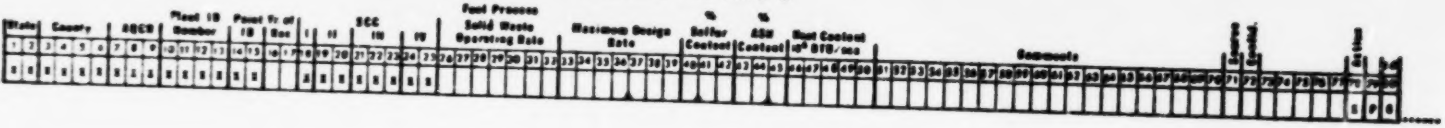
State	County	AQCR	Plant ID Number	Point ID	Yr of Rec.	SEASONAL THRUPUT Dec-Feb	Mar-May	June-Aug	Sept-Nov	NORMAL OPERATION Hr/day	Day/wk	Wk/yr	EMISSION ESTIMATES (tons year) Particulate	SO$_x$	NO$_x$	HC	CO	ESTIMATION METHOD	% Space Heat	Action
1 2	3 4 5 6	7 8 9	10 11 12 13	14 15	16 17	18 19	20 21	22 23	24 25	26 27	28	29 30	31–37	38–44	45–51	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TEMPLATE FOR CARD 5



State	County	AQCR	Plant ID Number	Point ID	Yr of Rec	Particulate	SO$_2$	NO$_x$	HC	CO	Compliance Schedule Year Month	Comp. Status Update Year Month Day	CONTROL REGULATIONS Reg. 1	Reg. 2	Reg. 3	Action
1 2	3 4 5 6	7 8 9	10 11 12 13	14 15	16 17	18–24	25–31	32–38	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TEMPLATE FOR CARD 6



State	County	AQCR	Plant ID Number	Point ID	Yr of Rec	SCC I	II	III	IV	Fuel Process Solid Waste Operating Rate	Maximum Design Rate	% Sulfur Content	% Ash Content	Heat Content 10^6 BTU/unit	Comments	Action
1 2	3 4 5 6	7 8 9	10 11 12 13	14 15	16 17	18	19 20	21 22 23	24 25	26–32	33–39	40 41 42	43 44 45	46–50	51–70	[illegible]